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UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

A SURVEY CONCERNING

THE MARKETING OF TIMBER PRODUCTS

OF THE

ROOSEVELT NATIONAL FOREST

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Market Study

A SURVEY CONCERNING THE MARKETING OF TIMBER PRODUCTS OF THE ROOSEVELT NATIONAL FOREST

By

P. L. Ginter and C. K. Collins
United States Forest Service

1940

FOREWORD

Although all figures concerning the farm questionnaires were compiled to represent conservative timber material requirements rather than the maximum it is impossible to predict that all the structures indicated by the farmers as needed or desired would ever be constructed, even under the most favorable conditions. For that reason anyone using these figures should freely apply discounts dictated by his own experience and judgment.

ACKNOWLEDGMENT

Gratitude is hereby expressed to the various individuals who have so freely assisted in furnishing valuable information used in this report. The authors are especially appreciative of the splendid cooperation given to them by the Farm Security Administration officers and county supervisors; the Colorado State Extension Service, county agents and State Forester; the various mine owners and officials; the Denver Rio Grande and Western Railroad Company; The Mountain States Telephone and Telegraph Company, the Public Service Company of Colorado; as well as the 635 farmers who have completed the farm questionnaires and all others who in anyway contributed to the study.

Much reliable information was also obtained from the Colorado Yearbook and other State publications as well as several Federal pamphlets.

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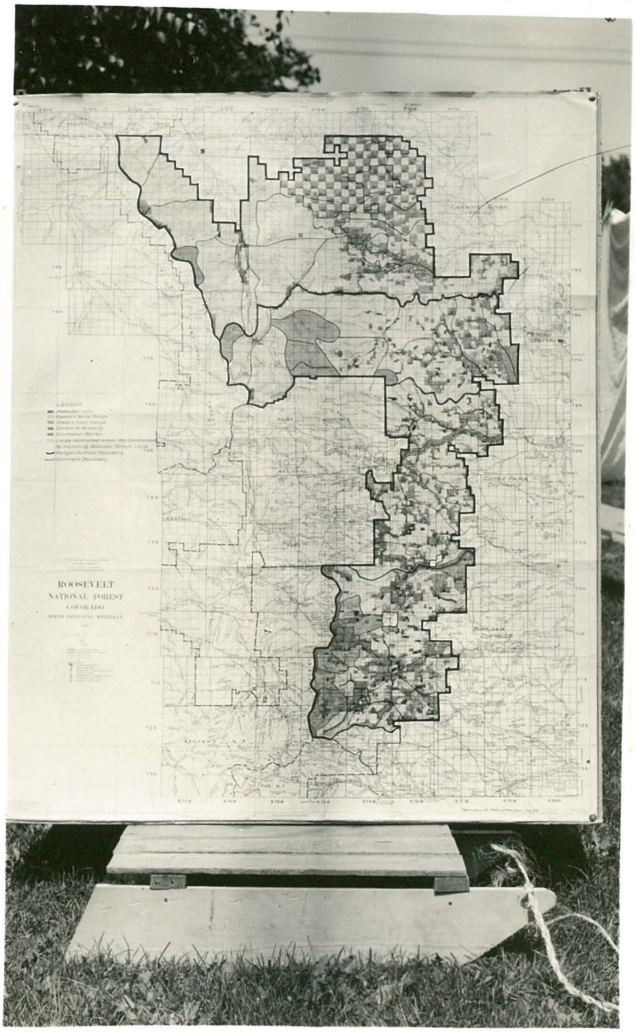


Map of Roosevelt National Forest showing private lands within the Forest.

A SURVEY CONCERNING THE MARKETING OF TIMBER PRODUCTS OF THE ROOSEVELT NATIONAL FOREST

INTRODUCTION

The purpose of this study is threefold: first, to determine the extent of the use of timber resources of the Roosevelt National Forest within its dependent territory; second, to determine how and to what extent these resources can further contribute to the social and economic welfare of the communities within this territory; and third, to emphasize the necessity for correlation between the needs of the dependent communities and timber resource management.

STUDY AREA

The study area consists of the Roosevelt National Forest and eleven counties in northeastern Colorado which comprise more than one sixth of the area of the State. (Figure 1) This area is the logical market for timber products from the Roosevelt and adjacent National Forests. These eleven counties comprise the major portion of the South Platte drainage in Colorado and contain a variety of social and economic conditions and problems which must be considered in marketing.

The largest continuous irrigated area in the State and one of the largest in the United States is located in this region. The study area has practically 38% of the irrigated farm land in the State of Colorado and 49% of the dry farm land. It contains about one third of the State's population, exclusive of Denver, and one third of the farms whose combined value is practically 42% of the farm value in the State. (Tables 1, 2, and 3.)

Table 4 shows that practically 46% of the total principal crop values and 30% of the livestock values are contained within the study area.

About 68% of the sheep and lambs and 90% of the cattle fed in transit in the State are fed in these eleven counties.

The dry farming areas may roughly be divided into two general classes as follows:

1. The so-called "hard lands" are composed of various silts and loams which are adapted to successful dry farming.
2. The so-called "light soils", or sandy soils, which dry out rapidly, are subject to severe wind erosion once they are disturbed, unless they receive expert agricultural treatment. These lands are covered in their natural state with grass and sagebrush and are primarily adapted to grazing.

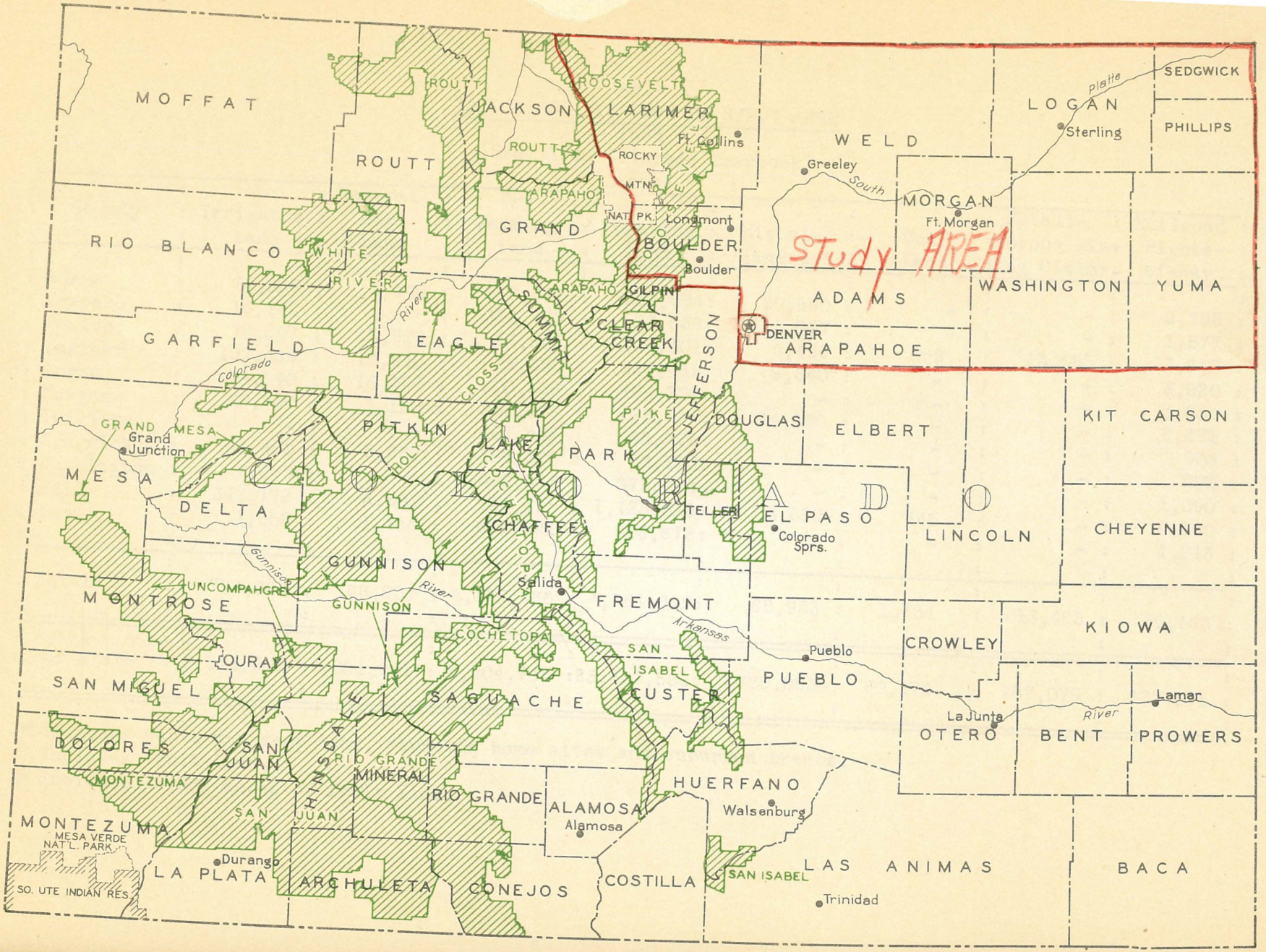

MOFFAT
ROUTT
JACKSON
ROOSEVELT
LARIMER
Ft. Collins
WELD
Greeley
LOGAN
Sterling
SEDGWICK
PHILLIPS
platte
South
ROCKY MTN. NAT. PK.
ARAPAHO
GRAND
Longmont
MORGAN
Ft. Morgan
RIO BLANCO
WHITE RIVER
BOULDER
Boulder
Study AREA
ADAMS
WASHINGTON
YUMA
GILPIN
CLEAR CREEK
SUMMIT
JEFFERSON
DENVER
ARAPAHO
GARFIELD
EAGLE
Colorado River
CROSS
PITKIN
GRAND MESA
Grand Junction
PARK
DOUGLAS
ELBERT
KIT CARSON
MESA
DELTA
LAKE
TELLER
EL PASO
Colorado Sprs.
LINCOLN
CHEYENNE
CHAFFEE
GUNNISON
Gunnison River
UNCOMPAHGRE
Salida
FREMONT
MONTROSE
COCHETOPA
SAN ISABEL
Arkansas River
Pueblo
CROWLEY
KIOWA
OURAY
SAN MIGUEL
SAGUACHE
CUSTER
PUEBLO
La Junta
Lamar
OTERO
BENT
PROWERS
DOLORES
SAN JUAN
RIO GRANDE
MINERAL
HUERFANO
MONTEZUMA
RIO GRANDE
ALAMOSA
Alamosa
Walsenburg
MESA VERDE NAT'L. PARK
SAN JUAN
LA PLATA
Durango
ARCHULETA
CONEJOS
COSTILLA
SAN ISABEL
LAS ANIMAS
Trinidad
BACA
SO. UTE INDIAN RES.

Fig. 1

Table I

LAND CLASSIFICATION OF STUDY AREA

1938

(From 1940 Colorado Yearbook)

Acres

County	Irrigated Land	Natural Hay Land	Dry Farming Land	Grazing Land	Miscellaneous*	Coal Land	Metaliferous Mining Claims	Railroad Rights-of-Way
Adams	74,008	4,540	512,977	137,094	20,860	-	-	2,798
Arapaho	16,142	-	324,773	87,558	15,877	-	-	1,577
Boulder	78,247	18,888	27,953	134,301	5,496	689	13,485	3,840
Larimer	107,488	14,940	25,380	620,461	8,640"	-	-	3,020
Logan	74,640	16,320	500,080	404,700	-	-	-	3,334
Morgan	68,790	1,120	235,176	426,919	14,190	-	-	2,271
Phillips	-	-	361,438	48,729	-	-	-	908
Sedgwick	19,490	5,239	187,820	93,183	-	-	-	802
Washington	7,075	-	1,096,933	375,684	-	-	-	1,090
Weld	347,172	6,300	715,115	1,125,818	3,890	445	-	9,830
Yuma	1,552	1,455	637,821	806,872	-	-	-	1,013
Totals	794,604	68,802	4,625,466	4,261,319	68,953	1,134	13,485	30,483
Total For State	2,113,508	381,981	9,404,745	23,437,562	1,778,093#	50,178	287,079	137,071

* Includes waste and seep land, mountain home sites and suburban tracts.

" Includes fruit land.

\# Includes 16,361 acres of fruit land.

Table I

LAND CLASSIFICATION OF STUDY AREA

(Continued)

Town & City Lots	Total Patented Land	Unappropriated and Unreserved	Land in Grazing Districts	National Forests	State Land	Unclassified	Parks and Monuments	Total All Land (Acres)
5,200	755,477	-	-	-	33,676	18,527	-	807,680
3,200	449,127	-	-	-	15,293	74,460	-	538,880
8,250	291,149	400	-	125,745	7,170	38,896	25,600	488,960
4,400	784,329	23,507	-	602,252	70,413	60,579	141,480	1,682,560
2,010	1,001,084	2,400	-	-	149,758	12,838	-	1,166,080
2,010	750,476	971	-	-	65,218	6,375	-	823,040
895	411,970	204	-	-	19,740	8,406	-	440,320
875	307,409	31	-	-	26,670	5,730	-	339,840
1,100	1,481,882	1,081	-	-	102,740	27,737	-	1,613,440
6,850	2,217,420	6,007	-	-	187,097	163,556	-	2,574,080
1,250	1,449,963	1,689	-	-	57,554	5,694	-	1,514,880
36,040	9,900,286	36,290	-	727,997	735,309	422,798	167,080	11,939,760
152,526	37,914,351*	1,077,983	7,026,624	15,629,552	3,282,623	2,787,218	622,789	66,341,120

* Includes 171,608 acres of timber land not shown under other captions.

Table 2

POPULATION OF STUDY AREA

County	Population 1940 Census: Total in County #	In Incorporated Cities & Towns °	On Farms
Adams	22,481	8,199	14,282
Arapaho	32,150	13,023	19,127
Boulder	37,438	25,800	11,638
Larimer	35,539	20,813	14,726
Logan	18,370	8,835	9,535
Morgan	17,214	7,542	9,672
Phillips	4,948	2,220	2,728
Sedgwick	5,294	2,679	2,615
Washington	8,336	1,915	6,421
Weld	63,747	29,898	33,849
Yuma	12,102	4,025	8,077
Total	257,619	124,949	132,670 "
State Total	1,118,820		
Excluding Denver	796,408		

° Colorado Year Book

" Includes small per cent of suburban population.

Complete and final 1940 census from Fort Collins Express Courier.

Table 3

NUMBER & VALUE OF FARMS

Acreage & Ownership

Federal Census January 1, 1935

County	Total No. Farms	Owners Part Owners Managers	Tenants	Tenant Farmers % of Total	Acres in Farms Operated By: Owners Part Owners Managers	Acres in Farms Operated By: Tenants	Value of Farms Land and Buildings
Adams	2,088	1,288	800	38.3	337,119	209,132	$ 13,364,605
Arapaho	1,535	982	553	36.0	312,433	161,316	12,473,850
Boulder	1,505	939	566	37.6	138,771	79,699	11,788,655
Larimer	2,047	1,137	910	44.5	513,648	177,554	17,597,389
Logan	1,929	880	1,049	54.4	628,158	370,793	15,961,612
Morgan	1,612	825	787	48.8	445,189	211,020	13,776,724
Phillips	876	402	474	54.1	228,097	194,443	7,460,936
Sedgwick	646	269	377	58.4	166,369	137,632	7,883,926
Washington	1,894	1,005	889	46.9	810,126	464,014	11,613,219
Weld	5,546	2,445	3,101	55.9	1,226,553	748,273	47,938,431
Yuma	2,176	1,203	973	44.7	898,727	484,609	14,252,031
Total	21,854	11,375	10,479	47.95	5,705,190	3,238,485	174,111,378
State Total	63,644	38,804	24,840	39.0	21,494,609	8,483,863	418,757,555

Table 4

CROP VALUES OF ALL PRINCIPAL CROPS
AND GROSS VALUE OF ALL LIVESTOCK
WITHIN THE STUDY AREA

County	Crop Values 1939 °	Livestock Values Total All Stock"	No. Sheep & Lambs Fed in Transit #	No. Cattle Fed in Transit
Adams	$ 2,785,700	$ 664,810	9,000	3,000
Arapaho	846,972	462,420	-	-
Boulder	1,815,937	619,060	7,000	12,000
Larimer	2,910,825	1,132,380	164,000	14,000
Logan	2,321,260	1,051,410	47,000	17,000
Morgan	2,199,159	948,390	177,000	13,000
Phillips	958,673	274,912	-	-
Sedgwick	1,361,898	258,200	3,000	3,000
Washington	720,343	893,391	5,000	1,000
Weld	14,283,017	2,810,950	339,000	58,000
Yuma	1,742,384	860,640	-	-
Total	$31,946,168	9,976,563	751,000	121,000
Total % of State	45.8	29.9	68	89.6
State Total	$69,766,200	$33,338,948	1,105,000	135,000

° Data from Colorado Agriculture Statistics 1939 U.S.D.A. Colorado State Planning Commission.

" Includes value of all cattle and sheep fed in transit.

Excluding animals grazed in transit.

Farms too small for economic units, improper agricultural practices, and lack of moisture are responsible for creating most of the social and economic problems on such lands.

Many farmers on such soil are still existing for another year such as 1923 when crops were good.

The average annual precipitation up to 1930 in the area varied from twelve to nineteen inches. This average represents twenty or more years. The period since 1930 has been drier than any prior to that time. This would appear to make proper land use a prime factor in the stabilization of the farm industry of this area.

The towns in the area vary from small country villages, of less than 100 population, to small cities, such as Fort Collins, Boulder, and Greeley, whose populations range from 12,000 to 16,000. Farm problems are reflected in the towns, because a majority are dependent on agriculture and grew up as agriculture trading centers.

Scope of Study

The study includes information concerning present social and economic conditions; timber product needs on farms, in towns, mines, by railroads, telephone and power companies within the study area.

Information pertaining to present forest operations is included, showing the extent to which they are meeting these needs.

Methods Used

Methods of obtaining information were as follows:

1. Farms

Questionnaires (Appendix, Figure 5) were filled out by the farmers through the cooperation of the Farm Security Administration and the county agents who obtained the information by direct contact. Information was also obtained from farmers in the Farm Union and Colorado State Grange by members of the Forest Service.

2. Towns

Building permits were checked in towns where this information could be furnished by city officials. Contractors also furnished valuable information as to present and potential lumber uses.

3. Mines

All coal mines as well as the principal "hard rock" mines were contacted directly by members of the Forest Service for information with regard to their annual needs for mine timbers. (Appendix Figure 6)

4. Railroads - Telephone and Power Lines

Information was obtained from Forest timber sale records and from statistical data contained in the Colorado Year Book. Data on telephone and power lines was also secured from the Mountain States Telephone Company and the Public Service Company of Colorado.

5. Miscellaneous

Information was also procured from Colorado Agricultural Statistics, Colorado Year Book, the Farm Housing Survey (U.S.D.A. Miscellaneous Publication #323), The Farm Security Administration, county agents, building contractors, and individuals who are members of the Farm Union and Colorado State Grange.

Table 5
PERCENT TENANTS ON FARMS IN COLORADO

	1910	1920	1925	1930	1935
Tenants	18.2%	23 %	30.9%	34.5%	39 %
% Land Area of State	20.1	56.9	36.4	43.5	45.2

From Colorado Yearbook 1937-1938

Table 6
TENURE WITHIN THE STUDY AREA

	Total No. Reporting	Period of Lease: 1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	10 Yrs.	Over 10 Yrs.
Tenants	384	217	20	91	6	41	1	6	2
Percent	-	56.5	5.2	23.7	1.5	10.7	0.3	1.6	0.5

Table 7
ATTITUDE OF LANDLORDS WITHIN STUDY AREA
TOWARD FINANCING IMPROVEMENTS

	Total Number Reported	Number in Favor of Financing Improvements	Number Against Financing Improvements
Tenants reporting on Landlords	364	205	159
Percent	-	56	44

Table 8
LANDLORDS
(within study area)

	Residence: Number Reported On	Number Living in Colo.	Number Living Outside of Colo.	Classes of Landlords: Indi-viduals	Corpor-ations	Federal Land Bank	State	Estate	Trust
Landlords	395	293	102	325	31	25	5	7	2
Percent	-	74	26	82.3	7.8	6.3	1.3	1.8	0.5

DISTRIBUTION OF FARM QUESTIONNAIRES IN STUDY AREA

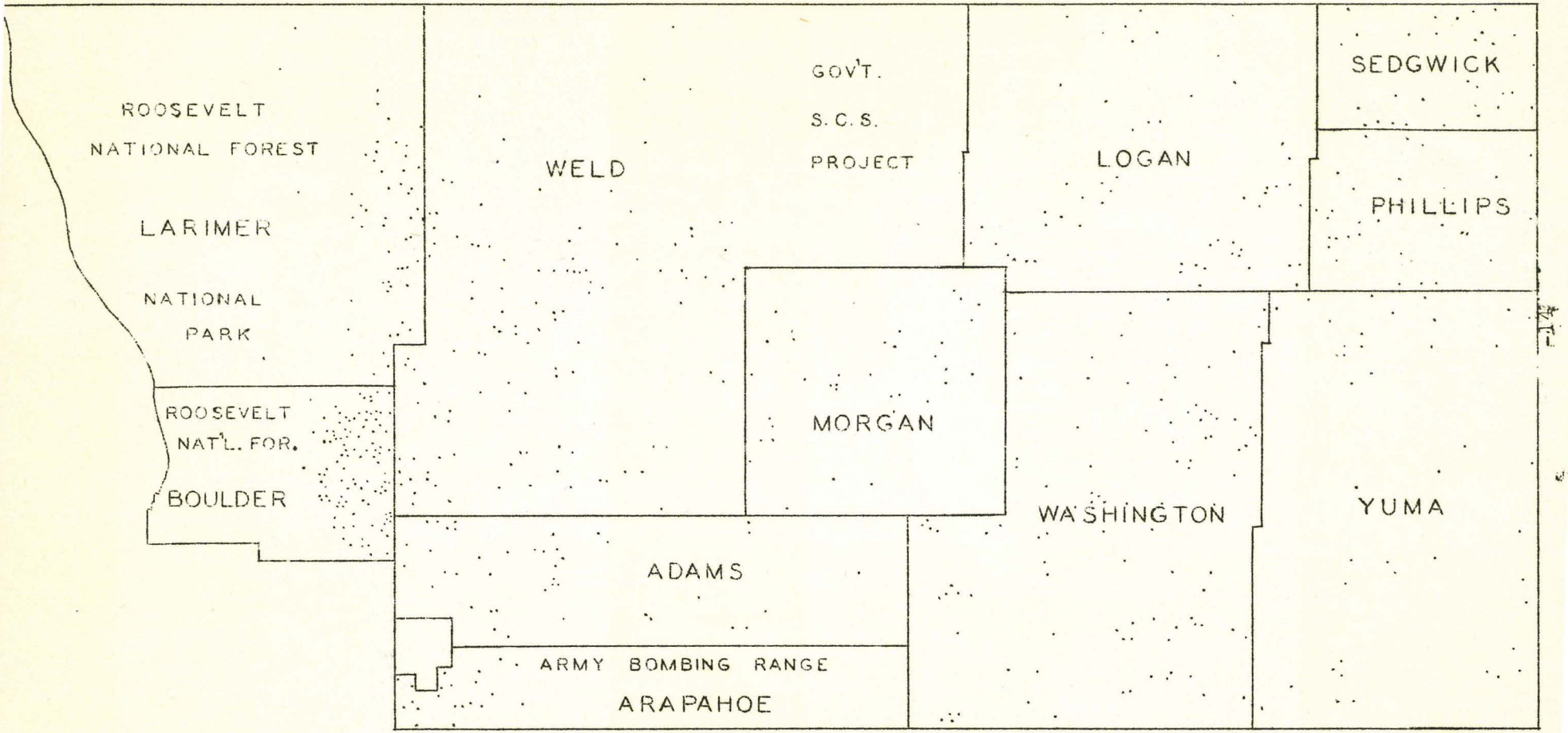


FIG. 2

Small farm house in good condition.

Farm house in good condition. This is a little larger than the average.

FARMS

The farm survey is based on 635 questionnaires representing 2.9% of all the farms within the study area.

Figure 2 shows the distribution of the farms represented by the questionnaires. The distribution conforms with the location of the farming territory and is representative of all types.

The results of the study compare favorably with a survey made in 1934 by the Bureau of Home Economics entitled "A Farm Housing Survey", in which 61.7% of the farm houses were covered in five counties within this study area.

An average of the 635 questionnaires shows 85.77% of the houses to be frame compared to 86.03% in the 1934 survey.

The present study shows 5.2 rooms per average house in comparison with 4.8 rooms in the 1934 survey. The 5.2 figure includes all bathrooms and enclosed porches over 6' x 8' which may account for the slightly higher average.

Table 3 shows the number of farms in the study area. The figures are based on the 1935 census, since 1940 figures were not available. This table indicates that 47.95% of the farms are occupied by tenants. Table 5 discloses this percentage to be higher than that for the whole State. This latter table also shows the trend in tenancy since 1910.

Table 6 reflects some of the factors affecting social and economic conditions on farms which are leased out, that 56.5% of the tenants have one year leases. It would seem logical that tenants on such an unstable basis would not be interested to any great degree in fixing up improvements on a farm. The fact that 44% of the landlords are against financing improvements would be another factor to discourage this type of betterment. (Table 7)

Table 8 indicates that 26% of the landlords live outside of Colorado which may further contribute to lack of interest in financing construction and repairs.

Table 9 shows the large number of frame buildings in comparison to other types of construction. Buildings eleven to twenty-four years of age represent the largest class with little construction work last year or even in the last ten years. Most of the new building construction centers around such less expensive and needed structures as hog houses, windbreaks, poultry houses, milk houses, and toilets.

Two families occupy this four room tenant house.

Dug-out dwelling with concrete walls.

Table 9

FARM BUILDINGS

REPRESENTED BY 635 QUESTIONNAIRES

Total° Number	Building	Number each Type	Type	Age Classes in Years -1	1-10	11-24	25-49	50+
676	Farm House	579	Frame	2	48	246	228	37
		6	Log	-	-	5	1	-
		10	Stucco	-	3	4	2	-
		18	Stone	-	3	2	7	6
		25	Concrete	1	7	7	9	-
		22	Brick	1	1	4	14	2
		15	Earth	-	1	6	8	-
165	Tenant House	150	Frame	1	18	65	49	5
		5	Log	-	-	2	1	-
		2	Stucco	-	-	-	-	-
		2	Stone	-	-	1	1	-
		3	Concrete	-	-	3	-	-
		5	Brick	-	1	1	2	-
17	Bunk House	15	Frame	-	2	7	6	-
		1	Log	1	-	-	-	1
		1	Concrete	-	-	-	1	-
405	Garage	374	Frame	3	71	180	90	5
		4	Log	1	2	1	-	-
		3	Stucco	-	2	1	-	-
		11	Stone	-	1	3	5	1
		6	Concrete	-	-	4	1	-
		2	Brick	-	2	-	-	-
		4	Metal	-	2	1	-	-
		1	Earth					
586	General Barn	552	Frame	5	69	245	177	18
		5	Log	-	2	1	2	-
		3	Stone	-	-	1	1	1
		11	Concrete	-	1	4	5	-
		6	Brick	-	1	1	4	-
		3	Earth	-	1	-	-	-
		2	Metal	-	-	1	-	-
		1	Frame & Weeds	-	1	-	-	-
174	Dairy Barn	162	Frame	7	30	61	45	7
		1	Stone	-	-	-	1	-
		8	Concrete	1	1	3	3	-
		1	Brick	-	-	-	1	-
		2	Metal	-	1	-	-	-
264	Cow Shed	242	Frame	3	47	81	69	10
		2	Log	-	1	1	-	-
		1	Stucco	-	1	-	-	-
		3	Stone	-	1	2	-	-
		6	Concrete	-	1	2	1	1

°This total may be higher than the total of types shown because occasional buildings listed without showing type. The same applies to age class.

Table 9
(Continued)

Total Number	Building	Number each Type	Type	Age Classes in Years				
				-1	1-10	11-24	25-49	50+
(1	Earth No Data)	1	Brick	-	-	-	1	-
		1	Slab	-	-	1	-	-
		2	Metal	-	-	-	1	-
		2	Straw	-	-	-	-	-
23	Sheep Shed	18	Frame	2	5	6	1	-
		1	Stone	-	-	-	1	-
		1	Concrete	-	-	1	-	-
		1	Metal	-	-	-	-	-
		1	Straw	-	-	1	-	-
401	Hog Houses	380	Frame	22	135	136	56	6
		2	Log	2	-	-	-	-
		1	Stone	-	-	-	-	1
		5	Concrete	-	-	2	-	-
		1	Brick	-	1	-	-	-
		5	Earth	-	2	1	-	-
		1	Metal	1	-	-	-	-
		4	Straw	-	2	1	-	-
537	Granary	481	Frame	4	81	204	119	19
		2	Stone	-	1	1	-	-
		6	Concrete	-	-	4	2	-
		2	Brick	1	-	1	-	-
		1	Earth	-	-	-	-	-
		41	Metal	4	8	6	4	1
42	Corn Crib	36	Frame	-	2	19	9	1
		1	Earth	-	-	-	-	-
		1	Metal	-	-	-	1	-
		4	Wire	-	3	-	-	-
95	Machine Shed	90	Frame	-	15	35	30	2
		1	Log	-	1	-	-	-
		1	Stone	-	-	1	-	-
		1	Concrete	-	-	-	-	-
		2	Metal	-	-	2	-	-
148	Windbreak	147	Frame	12	33	44	20	-
		1	Stone	-	-	-	1	-
716	Poultry House	661	Frame	20	143	291	115	5
		5	Log	2	2	1	-	-
		10	Stone	2	2	2	3	1
		20	Concrete	1	2	10	6	-
		7	Brick	-	1	5	1	-
		7	Earth	1	3	1	-	-
		1	Metal	-	-	1	-	-
154	Milk House	128	Frame	10	29	53	20	1
		1	Stucco	-	1	-	-	-
		12	Stone	1	4	-	5	1
		10	Concrete	3	2	-	3	-

Table 9
(Continued)

Total Number	Building	Number each Type	Type	Age Classes in Years -1	1-10	11-24	25-49	50+
	Milk House (cont'd.)	1	Earth	-	-	1	-	-
		1	Tile	1	-	-	-	-
208	Vegetable Cellar (Outside)	47	Frame	3	7	10	14	1
		2	Log	-	2	-	-	-
		4	Stucco	-	3	1	-	-
		16	Stone	-	1	4	8	2
		54	Concrete	4	8	24	8	-
		2	Brick	-	-	1	-	-
		75	Earth	7	15	26	11	1
21	Ice House	12	Frame	-	2	3	3	-
		2	Stone	-	-	1	1	-
(1	Log) No data	3	Concrete	-	-	2	-	-
		3	Earth	-	2	1	-	-
561	Toilet (Outside)	540	Frame	63	126	145	91	15
		2	Log	-	-	1	1	-
		1	Stucco	-	-	-	-	-
		1	Brick	1	-	-	-	-
		1	Earth	-	-	-	-	-
320	Windmill Tower	244	Frame	6	25	107	56	3
		50	Metal	2	1	9	2	-
		3	Concrete	3	-	-	-	-
37	Coal House	29	Frame	-	3	14	9	1
		1	Stone	-	-	-	1	-
		2	Brick	-	-	-	1	-
1	Wood House	1	Frame	-	1	-	-	-
4	Cob House	4	Frame	-	-	3	1	-
48	Brooder House	46	Frame	5	14	13	5	-
		1	Concrete	-	1	-	-	-
		1	Earth	-	-	1	-	-
16	Work Shop	15	Frame	2	3	4	5	1
		1	Log	-	-	-	1	-
6	Pump House	5	Frame	1	1	3	-	-
		1	Concrete	-	-	1	-	-
3	Tourist	2	Frame	-	-	-	-	-
	Cabin	1	Log	-	-	-	-	-
1	Vegetable Stand	1	Frame	-	1	-	-	-
3	Beet House	2	Frame	-	-	1	-	1
		1	Brick	-	-	-	1	-
5	Wash House	5	Frame	-	-	3	1	-
2	Store House	2	Frame	-	2	-	-	-
2	Tank House	2	Frame	1	-	1	-	-
1	Berry House	1	Frame	-	-	-	1	-
1	Box Cars	1	Frame	-	-	-	-	-
1	Scratch Pen	1	Frame	-	-	1	-	-

Table 9
(Continued)

Total Number	Building	Number each Type	Type	Age Classes in Years				
				-1	1-10	11-24	25-49	50+
1	Filling Station	1	Stone	-	1	-	-	-
1	Hot House	1	Frame	1	-	-	-	-
1	Corral	1	Frame	-	1	-	-	-
1	Feed Bunks	1	Frame	-	-	-	-	-
332	Sheep Panels	332	Frame	-	-	-	-	-
3	Silo	3	Concrete	-	-	1	-	1
12	Other Bldgs.	11	Frame	-	4	3	3	-
		1	Stone	-	-	-	1	-

If satisfactory financial assistance can be obtained 74% of the farmers would be interested in construction and repairs. (Table 10) This includes tenants who would be willing to construct portable buildings which could be moved when their leases expire.

On the other hand with prices at their present level, 264 farmers out of 547 report that they intend to build 284 new buildings in the next three years. This would make a potential market for 11,601 M board feet of native lumber annually in the study area (Table 11)

Out of 423 reporting, 243 indicate intentions to build 520 new buildings in the next three years if crop prices increase 25%. This would make a possible market for native lumber of 18,163 M board feet annually for the next three years for new construction. (Table 12)

Table 10

INTEREST IN CONSTRUCTION AND REPAIRS WITH SATISFACTORY FINANCING

	Total Number Reporting	Number Interested	Number not Interested
Farmers interested in construction or repairs if satisfactory financing plan can be arranged	500	370	130
Percent	-	74	26

Small farm building layout in Weld County.

A sod house in Washington County. There are still a number of sod houses in use.

Table 11

3-YEAR BUILDING PROGRAM
UNDER 1940 CROP MARKET CONDITIONS

		Will Build			Buildings	
	Number Reporting	Number Farmers	Per-Cent	Total for Study Area	Number Bldgs.	Number Bldgs. per Farm	Total for Study Area
Farmers planning to build within 3 yrs. under present market conditions	547	264	48	10,490	284	1.08	11,329

Kind of Building	Number Bldgs.	Bd.Ft. Native Lumber	Total Bd. Ft. Native Lumber	Average per Bldg.	Total For Study Area
		Per Bldg.#			
Farm House	16	9,400	150,400	Based on	Total for
Tenant House	2	4,500	9,000	the 210	study area
Garage	11	2,100	23,100	buildings	based on
General Barns	21	9,100	191,100	actually	11,329
Dairy Barns	11	3,300	36,300	described	buildings
Cow Shed	24	3,000	72,000		
Sheep Shed	5	3,200	16,000		
Hog House	10	1,000	10,000		
Granary	12	2,400	28,800		
Corn Crib	2	1,900	3,800		
Machine Shed	11	3,000	33,000		
Windbreak	5	200	1,000		
Poultry House	29	1,800	52,200		
Milk House	20	800	16,000		
Vegetable Cellar	1	1,300	1,300		
Toilet	8	400	3,200		
Coal House	2	1,000	2,000		
Brooder House	7	1,000	7,000		
Work Shop	2	2,200	4,400		
Wash House	1	1,400	1,400		
Store House	1	1,100	1,100		
Other	9	1,000	9,000		
Total for 3 years	210		672,100	3,200	36,253 M.ft. b.m.
Average Per Year					12,084 M.ft. b.m.
Average per yr: Reduced by 4%					11,601 M.ft. b.m.°

See table 13.

° Four percent less material to take care of the buildings other than frame. This was determined from bills of materials and percent of each type.

Common type of poultry house. Such buildings have a short life.

Poultry house in need of repair.

Table 12

3-YEAR FARM BUILDING PROGRAM

UNDER 25% IMPROVED CROP MARKET CONDITIONS

		Will Build				Buildings	
	Number Reporting	Number Farmers	Per-cent	Total for Study Area	Number Bldgs.	Number Bldgs. per Farm	Total for Study Area
Farmers planning to build within 3 yrs. if market conditions become 25% better	423	243	57	12,457	320	1.32	16,443

Kind of Building	Number Bldgs.	Bd. Ft. Native Lbr. Per Bldg. #	Total Bd. Ft. Native Lumber	Average Amount Per Bldg.	Total For Study Area
Farm House	21	9,400	197,400	Based on 286 buildings actually described.	Based on 16,443 buildings.
Tenant House	3	4,500	13,500		
Garage	22	2,100	46,200		
General Barn	35	9,100	318,500		
Dairy Barn	17	3,300	56,100		
Cow Shed	27	3,000	81,000		
Sheep Shed	3	3,200	9,600		
Hog House	17	1,000	17,000		
Granary	19	2,400	45,600		
Corn Crib	3	1,900	5,700		
Machine Shed	30	3,000	90,000		
Windbreak	8	200	1,600		
Poultry House	53	1,800	59,400		
Milk House	16	800	12,800		
Vegetable Cellar	3	1,300	3,900		
Toilet (Outside)	5	400	2,000		
Windmill Tower	2	400	800		
Work Shop	2	2,200	4,400		
Pump House	1	2,400	2,400		
Brooder House	8	1,000	8,000		
Wash House	1	1,400	1,400		
Store House	1	1,100	1,100		
Other	9	1,000	9,000		
Total for 3 years	286	56,900	987,400	3,452	56,761 M
Average per Year					18,920 M
Average Per Yr. Reduced by 4% °					18,163 M

° See footnote for table 11.

See table 13.

Typical barn in good condition. (Logan County)

A large barn in Morgan County. Such a building is an asset to the farm.

Table 13
LUMBER IN FARM BUILDINGS
Simple Frame Structure

Kind	Av. Size			Rooms	Stories	Possible Bd.Ft. Native	Cost° Native Lumber	Cost ƒ Other Than Native Lumber	Saving Per Building
	L	W	Ht.	Av.	Av.				
Farm House	34	24	10	5	1	9,400	$264.00	$376.00	$ 112.00
Tenant House	24	18	9	3	1	4,500	128.00	186.00	58.00
Bunk House	20	16	8	1	1	3,100	89.00	130.00	41.00
Garage	20	16	8	1	1	2,100	59.00	84.00	25.00
General Barn	38	26	12	2	1½	9,100	260.00	365.00	105.00
Dairy Barn	30	18	9	1	1	3,300	96.00	133.00	37.00
Cow Shed	36	16	8	1	1	3,000	85.00	121.00	36.00
Sheep Shed	32	18	7	1	1	3,200	91.00	128.00	37.00
Hog House	16	9	5	2	1	1,000	29.00	40.00	11.00
Granary	22	14	9	2	1	2,400	69.00	96.00	27.00
Corn Crib	20	12	8	1	1	1,900	54.00	77.00	23.00
Machine Shed	34	18	8	1	1	3,000	85.00	120.00	35.00
Windbreak	18	-	6	-	-	200	-	-	-
Poultry House	24	14	7	1	1	1,800	51.00	72.00	21.00
Milk House	10	8	7	1	1	800	23.00	32.00	9.00
Vegetable Cellar	22	12	7	1	1	1,300	37.00	54.00	17.00
Ice House	14	10	8	1	1	1,600	45.00	64.00	19.00
Toilet	5	4½	7	1	1	400	11.00	16.00	5.00
Windmill Tower	9	8	26	-	-	400	12.00	17.00	5.00
Coal House	12	8	6	1	1	1,000	29.00	41.00	12.00
Cob House	14	8	6	1	1	1,000	30.00	41.00	11.00
Brooder House	12	10	6	1	1	1,000	29.00	40.00	11.00
Work Shop	20	12	9	1	1	2,200	64.00	89.00	25.00
Pump House	16	12	14	1	1	2,400	68.00	96.00	28.00
Beet House	20	16	8	1	1	2,600	75.00	105.00	30.00
Wash House	14	10	8	1	1	1,400	42.00	57.00	15.00
Store House	14	8	8	2	1	1,100	31.00	44.00	13.00
Tank House	12	12	20	-	-	2,200	64.00	89.00	25.00
Sheep Panel	12	4	3	-	-	90	2.00	-	-
Other Bldgs.	12	8	7	-	-	1,000	30.00	41.00	11.00

ƒ (Outside or Pacific Coast prices
$40 (2 x 4 - 2 x 6 - 2 x 8 #2
(Sheathing #4 - Drop siding E grade

$54 (1 x 4 flooring fir D grade

° (Native
$28 (2 x 4 - 2 x 6 - 2 x 8 #2
(Sheathing #3

$30 (Drop siding and pine flooring.

A machine shed in Washington County.

A good garage on a farm in Sedgwick County.

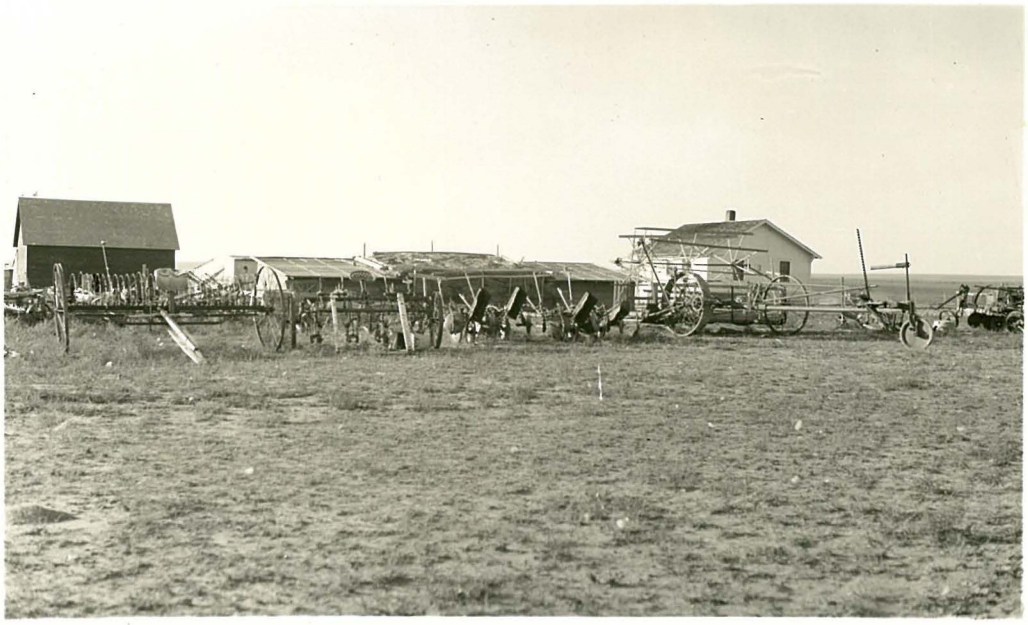
The average sized frame building was determined from the questionnaires for each class of building. (Table 13) From this, a simple bill of material was made for the lumber in the building which could be native on the basis of what many contractors will or would accept if properly manufactured. In the house figures, the material which could be native includes common lumber for sheathing, subfloors, and roofing boards, dimension material, and siding. In other buildings, such as tenant houses, pine flooring was added. Eventually other material will be available but the aim was to be conservative in the kind and amount of lumber used. These figures do not represent the maximum amount of native lumber which could be used, as this depends upon further education of the farmer in the use of lumber. Savings were also figured on the basis of somewhat comparable material using minimum prices for which it would be available in the vicinity of Fort Collins, in May 1941.

In most cases all lumber listed in the tables is evened off to the nearest one hundred board feet and value to the nearest dollar.

In the questionnaires native lumber was defined as local lumber which in most cases was unseasoned and rough. The farmers were asked if they would use more native lumber it if were seasoned, surfaced, graded, and properly manufactured. Table 14 shows the results with 86% indicating the number who would use it if better manufactured etc., while 14% are still prejudiced against it no matter how it is handled. From personal observance it is likely that these 14% for the most part have obtained some of the poorly manufactured lumber in the past which they say "twisted up before we could use it".

Some of the farmers even wanted to know if the trees were tall enough so that the operators could cut something longer than eight feet. This indicates that much of the lumber used in the past was poorly manufactured side cut from the tie industry.

The low figure of 14% prejudiced is probably somewhat due to the fact that properly manufactured and seasoned native lumber was displayed at a number of farm meetings and shown to individual farmers prior to the time many of them filled in the questionnaires.



Very few farms have machine sheds

Considerable lumber is used in milk houses and windmill towers.

Table 14
ATTITUDES TOWARD NATIVE LUMBER

Total Number Reporting	Number Prejudiced Against Native Lumber	Percent Against	Number In Favor of Native Lumber	Percent Favorable
497	71	14	426	86

Table 15 indicates that the average farm building layout consists of a farm house, general barn, granary, poultry house, toilet, and possibly a garage. It is also indicative of the fact that other buildings are needed because of the present low number existing.

The amount of lumber in all the existing buildings which could have been native as defined under a previous heading is also shown. The total of this amount was divided by fifty, this figure representing what may be considered a conservative life span of the average farm building. The Forest Service depreciates a house and barn in thirty years, other improvements in twenty years, and fences in fifteen years. From the answer, four percent were deducted, because the total is based on all being frame buildings while actually, for example, fourteen percent of the houses and six percent of the general barns are other than frame and would use less lumber. The four percent were worked out from bills of material for farm houses which represent one of the largest percentages of principal buildings which are other than frame, and also the largest total amount of lumber for any one type of building. This figure, while too large for most of the other types of buildings, was retained and used for the sake of being conservative.

Table 16 shows the number of new buildings constructed on farms within the study area in 1940 with the possible board feet of native lumber. This volume with the four percent deduction for other than frame buildings shows that approximately 10,830 M feet board measure could have been native lumber under proper conditions.

Granary in Yuma County.

Barn and shed in Morgan County which need minor repairs.

Table 15

NUMBER OF FARM BUILDINGS IN THE STUDY AREA BASED ON 635 QUESTIONNAIRES AND 21,854 FARMS

(Farms as of 1935 Census)

Kind of Building	On Each Farm	Number in Study Area	Per-cent Frame	Lumber in Existing Bldgs. which could have been Native See Caption (1)	Annual Requirement on Basis of 50 Yr. Life
Farm House	1.06	23,165	86%	217,751 M Bd. Ft.	
Tenant House	0.26	5,682	91	25,569 " " "	
Bunk House	0.03	656	88	2,034 " " "	
Garage	0.64	13,987	92	29,573 " " "	
General Barn	0.92	20,106	94	182,965 " " "	
Dairy Barn	0.27	5,900	93	19,470 " " "	
Cow Shed	0.42	9,179	92	27,537 " " "	
Sheep Shed	0.04	874	78	2,797 " " "	
Hog House	0.63	13,768	95	13,768 " " "	
Granary	0.85	18,576	90	44,582 " " "	
Corn Crib	0.07	1,530	86	2,907 " " "	
Machine Shed	0.15	3,278	95	9,854 " " "	
Windbreak	0.23	5,026	99	1,005" " "	
Poultry House	1.13	24,695	92	44,451 " " "	
Milk House	0.24	5,245	83	4,196 " " "	
Vegetable Cellar	0.33	7,212	33	9,376 " " "	
Ice House	0.03	656	57	1,050 " " "	
Toilet	0.88	19,232	96	7,693 " " "	
Windmill Tower	0.50	10,927	76	4,371 " " "	
Coal House	0.06	1,311	78	1,311 " " "	
Cob House	0.01	219	100	219 " " "	
Brooder House	0.08	1,748	96	1,748 " " "	
Work Shop	0.03	656	94	1,443 " " "	
Pump House	0.01	219	83	526 " " "	
Beet House	0.005	109	67	283 " " "	
Wash House	0.01	219	100	307 " " "	
Store House	0.003	66	100	73 " " "	
Tank House	0.003	66	100	145 " " "	
Sheep Panels	0.52	11,564	100	1,023 " " "	
Other Bldgs.	0.02	437	92	437 " " "	
Total				658,244 M Bd. Ft.	12,638° M Bd.Ft.

° Reduced by 4% on account of buildings other than frame.

Portable hog houses.

Sheep panels for feeding pens require considerable lumber.

Table 16

NEW FARM BUILDINGS CONSTRUCTED
DURING 12 MONTH PERIOD ENDING IN 1940

Type of Bldg.	Number Buildings in Study	Number New Buildings	Total New Buildings in Study Area	Possible M Board Feet Native Lumber
Farm House	676	4	137	1,288
Tenant House	165	1	34	153
Bunk House	17	1	39	121
Garage	405	4	138	290
General Barn	586	5	172	1,565
Dairy Barn	174	8	271	894
Cow Shed	264	8	278	834
Sheep Shed	23	2	76	243
Hog House	401	25	858	858
Granary	537	9	311	746
Corn Crib	42	-	-	-
Machine Shed	95	-	-	-
Windbreak	148	12	408	82
Poultry House	716	26	897	1,615
Milk House	154	15	511	409
Vegetable Cellar	208	14	485	631
Ice House	21	-	-	-
Toilet	561	64	2,194	878
Windmill Tower	320	11	376	150
Coal House	37	-	-	-
Brooder House	48	5	182	182
Shop	16	2	82	180
Cob House	4	-	-	-
Pump House	6	1	37	89
Beet House	3	-	-	-
Wash House	5	-	-	-
Store House	2	-	-	-
Tank House	2	1	33	73
Sheep Panels	332	-	-	-
Other Bldg.	12	-	-	-
Total	5,980	218	7,519	10,830 °

°Total reduced by 4% on account of buildings other than frame.

Many farm buildings need replacing.

Table 17

AMOUNT SPENT FOR LUMBER ON FARMS IN 1940 FOR MAINTENANCE

Other Than Native Lumber			Native Lumber		
635 Farms	Per Farm	In Study Area	635 Farms	Per Farm	In Study Area
$11,533.00	$18.16	$396,869.64	$4,060.00	$6.39	$139,647.06
Using $50 per M as an average figure for other than native lumber, a total of 7,937 M board feet had been purchased in 1940.			Using $25 as the average figure for native lumber a total of 5,586 M board feet had been purchased in 1940.		

Table 16 shows new construction for a twelve month period ending in 1940 while Table 17 shows the amount used in maintenance during the same period.

The figure of $50 for other than native lumber was based on a price range of $40 to $70 for lumber with the majority probably being $40 material or the cheapest they could obtain.

The figure of $25 for native lumber was based on general observation of the kind of lumber purchased and its price range. The native lumber has been selling for from $16 to $20 per M board feet for rough unseasoned lumber to $30 per M board feet for the seasoned and surfaced common lumbers. The average would not vary far from $25 per M board feet.

The 5,586 M board feet of native represents lumber that might have come from the Pike, Arapaho, Roosevelt, Routt, and Medicine Bow National Forests.

It is reasonable to assume that at least one half of the 7,937 M board feet, representing material other than native used for maintenance in 1940, could have been native.

Table 18 indicates the number of buildings of each type needing repair, number needing replacing, and new buildings wanted. It is believed that there is some duplication in "New Buildings Wanted" in that a few showed the same building needing replacing and also wanted.

Table 18

FARM BUILDINGS NEEDING REPAIR, REPLACING, AND NEW BUILDINGS WANTED

Type	Number Buildings Study	Number Lumber Repairs Needed: In Questionnaires	Repairs Needed: Percent	Repairs Needed: In the 11 Counties	Buildings Requiring Replacement: In Questionnaires	Replacement: Percent	Replacement: In the 11 Counties	New Buildings Wanted: In Questionnaires	New Buildings Wanted: Percent	New Buildings Wanted: In the 11 Counties	Possible Market for Native Lumber under Column 7: M Board Feet
Farm House	676	340	50	11,582	60	9	2,085	59	9	2,085	19,599
Tenant House	165	67	41	2,330	14	8	455	9	5	284	2,048
Garage	405	123	30	4,196	52	13	1,818	73	18	2,518	3,818
General Barn	586	256	44	8,847	96	16	3,217	67	11	2,212	29,275
Dairy Barn	174	66	38	2,242	28	16	944	40	23	1,357	3,115
Cow Shed	264	80	30	2,754	45	17	1,560	73	28	2,570	4,680
Sheep Shed	23	10	43	376	3	13	114	9	39	341	365
Hog House	401	85	21	2,891	48	12	1,652	58	14	1,928	1,652
Granary	537	142	26	4,830	42	8	1,486	61	11	2,043	3,566
Corn Crib	42	8	19	291	5	12	184	14	33	505	350
Machine Shed	95	28	29	951	9	9	295	51	54	1,770	885
Poultry House	716	198	28	6,915	91	13	3,210	94	13	3,210	5,778
Milk House	154	31	20	1,049	18	12	629	50	32	1,678	503
Windbreak	148	26	18	905	5	3	151	63	43	2,161	30
Vegetable Cellar	208	33	16	1,154	11	5	360	21	10	721	468
Ice House	21	4	19	125	2	10	66	6	29	190	106
Toilet(Outside)	561	70	12	2,308	93	17	3,269	67	12	2,308	1,308
Windmill Tower	320	41	13	1,421	14	4	437	15	5	546	175
Coal House	37	5	14	184	4	11	144	3	8	105	144
Brooder House	48	7	15	262	2	4	70	7	15	262	70
Shop	16	3	19	125	2	13	85	3	19	125	187
Bunk House	17	3	18	118	1	6	39	1	6	39	121
Other											
Pump House	6										
Beet House	3										
Wash House	5										
Store House	2										
Tank House	2										
Cob House	4										
Wood House	1										
Other	12										
Total Other	35	7	20	267	1	3	40	2	6	80	40
Total											78,283
Total - Reduced by 4% to compensate for buildings other than frame											75,152

FIGURE 3
TREND IN CONSTRUCTION OF FARM HOUSES

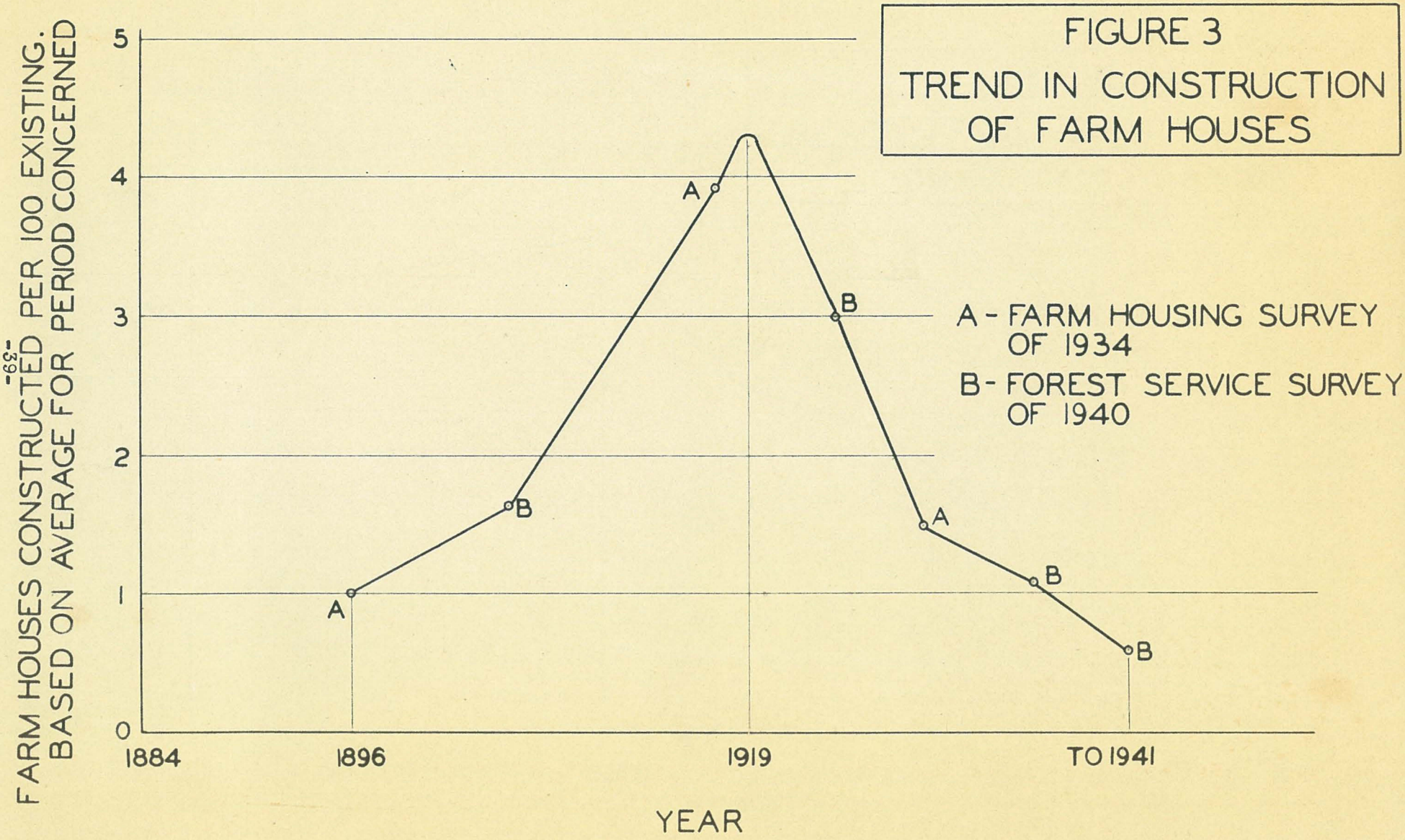
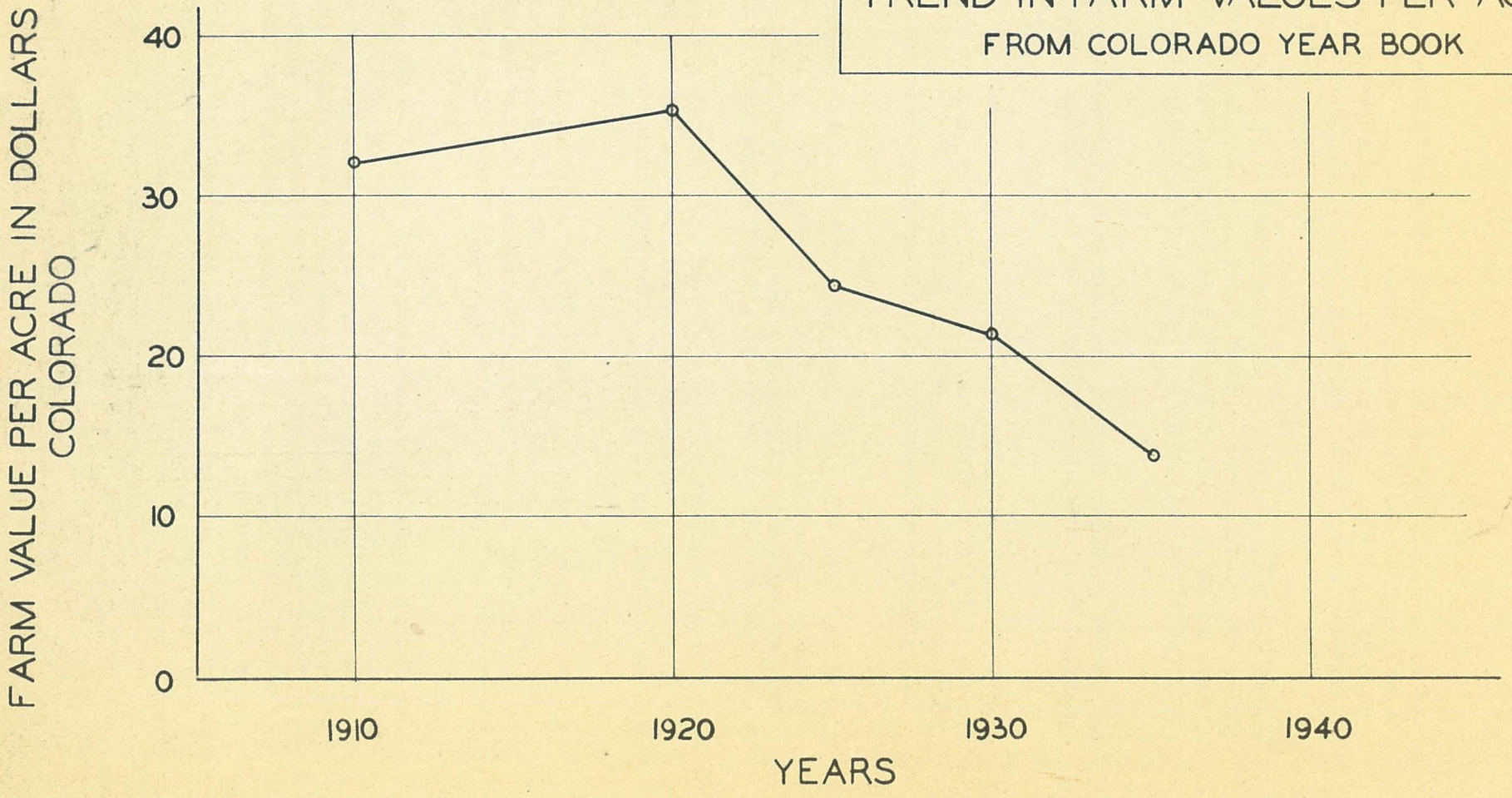


FIGURE-4

TREND IN FARM VALUES PER ACRE

FROM COLORADO YEAR BOOK



T.C. Oct 25-4

"New Buildings Wanted" include those which do not now exist on the farm. The "wanted" figure was nevertheless included and is indicative of needs especially on certain classes of buildings such as garages, dairy barns, cow sheds, granaries, corn cribs, machine sheds, milk houses, and windbreaks.

The possible amount of native lumber which could be used for buildings needing replacing was computed for the study area. The volume shown of over 75 million board feet with that which could be used for "New Buildings Wanted" should run well over 100 million board feet.

Figure 3 is an attempt to show past and present building trends for farm houses which should also be indicative of other farm building construction.

Figures from this study were combined with those from the 1934 Farm Housing Survey to make the graph which was plotted on the basis of the average of the period concerned. The graph checks fairly well with information obtained from old time contractors contacted in this vicinity.

The period between 1916 and 1921 was apparently the high point in farm house building. It appears that the annual average number of houses to be built over a long period should be about two per one hundred or more than double the figures shown in the present study.

Figure 4 supports Figure 3 in that farm values reached a peak in 1920 and have dropped off rapidly since that time. Real estate men indicate that farm improvements have quite a direct bearing on farm land values.

Table 19 shows a potential outlet for such products as fence posts and corral poles. Corral poles were overlooked in preparing the questionnaire but many indicated their need for this product under the heading of other. This figure is very conservative but represents an urgent need.

Fence posts needed per year for replacement alone would amount to more than 21,000,000 board feet. The posts now used are being supplied in the form of cheap split posts from the West coast, posts from the Black Hills, and a few from the adjacent National Forests such as the Arapaho and Roosevelt. The West coast posts retail for 20¢ to 30¢ each untreated in comparison to about 50¢ each for seven-foot pitch posts from the Black Hills or local forests. All metal posts have been deducted leaving the figures shown in the table representing wood posts only. Metal posts are not an important competing factor as yet, but may be used more if the problem of obtaining wood posts at a reasonable price becomes acute.

Table 19

WOOD POST FENCE

	From Questionnaires: Number Reporting	From Questionnaires: Number	Average per Farm	Total Number for Area
Rods of wood post fence on farms	555	810,858	1,461.0	31,928,694
Rods of wood post fence needed in 1941 for repairs	530	74,038	140.0	3,059,560
Rods of new wood post fence needed in 1941	372	31,049	83.0	1,813,882
Corral poles needed		925°	1.5	32,781

°Based on 635 questionnaires

Table 20

LUMBER FOR GENERAL REPAIRS

	From Questionnaires: Number Reporting	From Questionnaires: M Feet B. M.	Average per Farm	Total for Area	Cement Needed for Various Purposes: Number Reporting	Cement Needed for Various Purposes: Number Sacks	Cement Needed for Various Purposes: Average per Farm	Cement Needed for Various Purposes: Total for Area
Farms	355	638.12	1.005°	21,963,000	393	9,511	15°	327,810°

°Based on 635 questionnaires

Showing the need for corral poles on a farm in Yuma County. The buildings in the background show need of repair.

Only a few farms have windbreaks. Photo shows an old windbreak in Weld County.

If all posts in the study area were to last twenty years it would take about 1,596,435 posts annually to maintain the fences in the area, exclusive of new construction. This would be equivalent to about 11,175,045 board feet.

Because fences have been neglected for the past few years the need of 3,059,560 posts for 1941 is higher than the annual average.

Need for new fencing for 1941 is indicated as 1,813,882 rods, or 12,697,174 feet board measure.

Table 20 represents an immediate need for lumber for repairs and the amount of cement needed for various purposes.

Lumber for general repairs was computed both on the basis of the number reporting and on the basis of the total number of questionnaires. The latter figure while smaller was chosen as a more conservative guide.

Sacks of cement were computed on the basis of the total number of questionnaires and although conservative still represent a large quantity of this material needed. Cement was included because it indicated the need for form lumber and also new construction.

Table 21 shows that 19% of the farmers are interested in woods work. A large portion of those interested represents small landowners and it is thought that the yearlong figures do not represent the need of work for the farmer himself as much as for his son or sons who are reaching maturity. It is nevertheless a figure to be given consideration, since on the whole it indicates a total of 1648.8 man years of unemployment on farms.

The fact that only three percent now belong to cooperatives where they can buy lumber and 69% are interested in them (Table 22) is interesting in that it is a possible method of approach in the marketing of native lumber. The Farm Security Administration is bringing about increased stress on cooperative activities. It is very possible that substantial assistance could be obtained insofar as it helps the low income farmer.

Table 23 indicates that 52% of the farmers buy coal direct from the mines. This may make it possible for them to handle props and exchange them for coal. This might be handled through cooperatives who could put a few of the farmers, or their sons who indicate need for work, to cutting props and trucking them to a central point where the farmer could pick them up and exchange them for coal.

At present the coal mine prop business is controlled by coal dealers who are in the prop business, or who handle props on a commission basis through the woods operator. Where the latter procedure is followed the coal dealer clears from $4 to $10 on each load of props without touching them.

TABLE 21

FARMERS WILLING TO DO PART TIME WOODS WORK DURING SLACK PERIODS °

	Total Number	Number Not Interested	Interested: Number	Interested: Per-cent	Total Months Unemployed And Available For Woods Work: Spring	Summer	Fall	Winter	Yearlong	Total Months
Total number reporting	493	397	96	19	24	48½	65	248	72	457½
Total for study area	21,854	-	4,152	-	1,038	2,097	2,811	10,725	3,114	19,785
Total converted to man years					86.5	174.8	234.2	893.8	259.5	1,648.8

°Includes also male members of family over 18

TABLE 22

COOPERATIVES

	Number	Per cent	Total Number In Study Area
Number belonging to cooperatives where they can buy lumber	19	3	656
Number not belonging to cooperatives where they can buy lumber	557	97	21,198
Interested in belonging to such cooperatives	363	69	15,079
Not interested in belonging to such cooperatives	162	31	6,775

Table 23

TRUCKING

	Number	Per cent	Loads	Total Number in Study Area
Farmers buying coal direct from mine	313	52	-	11,364
Farmers not buying coal direct from mine	289	48	-	10,490
Farmers reporting	602	-	-	-
Farmers trucking produce to foothill towns	31	6	282	1,311
Farmers not trucking produce to foothill towns	525	94	-	20,543
Farmers reporting	556	-	-	-
Farmers buying native lumber trucked in	125	22	-	4,808
Farmers not buying native lumber trucked in	451	78	-	17,046
Farmers reporting	576	-	-	-
Farmers buying native posts trucked in	178	31	-	6,775
Farmers not buying native posts trucked in	391	69	-	15,079
Farmers reporting	569	-	-	-

Only six percent of the farmers truck produce to the foothill towns so if native lumber yards are located along the foothills the farmers must come after their material with an empty vehicle. This may make it necessary to distribute native material throughout the area as a whole so that it can be readily and more economically secured.

Twenty two percent of the farmers buy native lumber trucked in and from personal knowledge of the situation it is known that most of this lumber is unseasoned, unsurfaced material, and poorly manufactured.

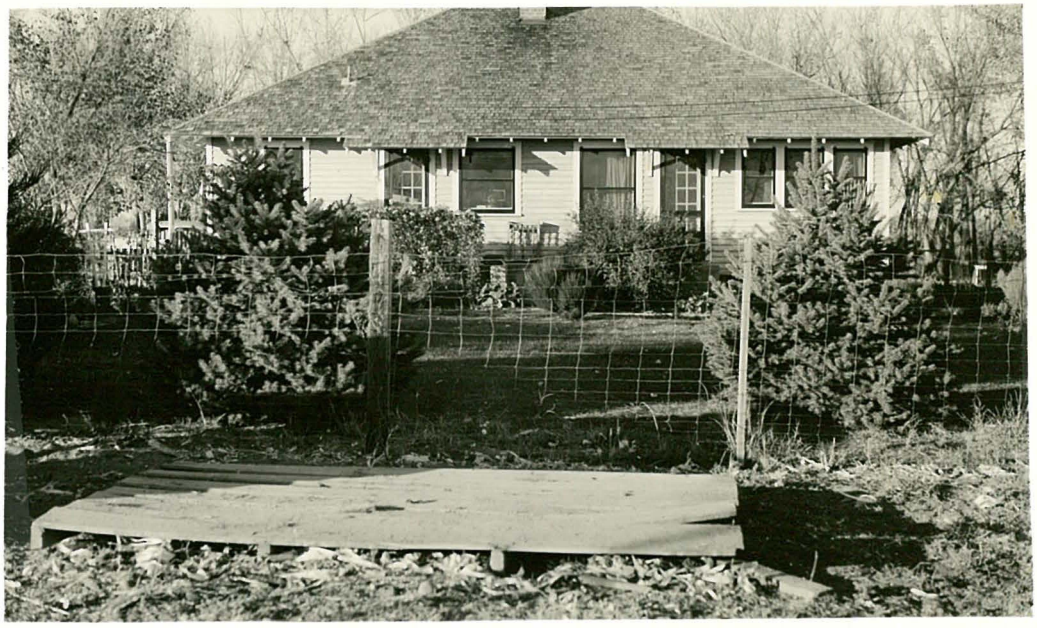
It is doubtful if the 31% buying posts trucked in buy any large quantity in proportion to the need, or the total consumed. Most of the post operators on the Forest are on the small sale basis and handle pitch posts which are becoming harder to find each year. Other posts are being trucked in from the Black Hills. These are supposed to be all pitch posts but many are merely dry pine. No one as yet has made any effort to treat lodgepole pine posts and sell them in this area, although many of the farmers are interested in treated posts if they can be purchased at a reasonable cost.

Table 24 shows 26% of the farms have woodlots. Most of the woodlots from observation are on the better farms. This figure would indicate a need for farm woodlots and a need at present for fuelwood. This situation might be handled through cooperatives who could not only handle fuelwood but could furnish labor to needy farmers.

Table 25 shows that 73% of the farms have shade trees, with an average of 22 to the farm. The ability to purchase trees at cost through the Clark-McNary Act is to a great extent reflected in this situation. The interesting figure in this table is the 49%, or almost half of the farmers still desire about a half million shade trees.

There has been considerable discussion as to the value of windbreaks in the last few years. It would seem that the farmer himself should know something of their value by this time, and the figure of 590,058 rods needed in the eleven counties can be used on the basis of their own statements to indicate the importance of windbreaks on the farm. (Table 26) The study area contains some of the best farm land in the State and trees in windbreaks should have a fair chance of survival. This factor alone might increase the chance for larger crops and, therefore contribute to a better social and economic status.

The effort of the State Extension Service, through the State Forester, to meet this need is shown in the 8,523 farms having tree windbreaks. There are still, however, 13,331 farms without tree windbreaks in the study area. Information from the State Forester indicates that over 465,000 trees were sold within the State to farmers in 1940.



A well planted farm house yard in Morgan County. Trees and shrubs do well when given proper attention. Tree windbreak in background.

TABLE 24
WOOD LOTS

	Number	Per cent	Number in Study Area
Number answering questionnaires	605		
Farms with woodlots	156	26	5,682
Farms without woodlots	449	74	16,172

TABLE 25
SHADE TREES

	Number	Per cent	Number in Study Area
Answering questionnaires	591		
Farms having shade trees	433	73	15,953
Farms having no shade trees	158	27	5,901
Farms desiring shade trees	314	49°	10,708
Total number trees desired	13,708		
Average number per farm desired	22°		
Total			480,788

°Based on 635 questionnaires

TABLE 26
TREE WINDBREAKS

	Number	Per cent	Number in Study Area
Answering questionnaires	423		
Farms having tree windbreaks	165	39	8,523
Farms having no tree windbreaks	258	61	13,331
Farms desiring tree windbreaks	389	61°	13,331
Total number rods desired	17,075		
Average number rods per farm desired	27°		
Total			590,058

°Based on 635 questionnaires

Table 27

FARM SUMMARY SHOWING POSSIBLE MARKET FOR NATIVE TIMBER PRODUCTS

Annual Minimum Based on 1940 Conditions

Indicated new building construction needed	10,830 M
Indicated maintenance & repair	
Native lumber	5,586 M
Native which could be substituted for other lumber	4,000 M
Corral poles (as indicated)	262 M
Posts for maintenance (20 year life)	11,175 M
Total	31,853 M
If one third of the volume for new fences wanted were added - - - - - - - - - - - - - - - -	4,232 M
Grand Total	36, 085 M

Assuming that new building construction is represented in Figure 3 and that the average should be two houses per 100 instead of about 0.6, as in 1940, and using this as a criterion for all farm building construction the total would be increased by 21,660 M making a total of 57,745 M board feet as the optimum possible annual market for native timber products. This is with the assumption that all other figures, i. e., maintenance, repair, fencing, etc., will remain somewhat static.

If building on farms would increase to a peak comparable to that in Figure 3 the possible native market would increase to 101,065 M board feet per year.

The figures in Tables 18, 19, and 20 for buildings needing replacement; repairs now needed; fence posts needed for repair and new fence, (excluding new buildings wanted which do not now exist) amount to 131,229 M board feet which could be native products. With conditions now brighter from the farmers' viewpoint this figure indicates that the trend will be towards more construction and improvement work in the near future. Tables 11 and 12 appear to substantiate this statement. About the only thing which could stop it would be crop failure and a market slump. The need is there and is now urgent.

TOWNS

Detailed information concerning towns is almost impossible to obtain in accurate form. The information which was used was taken from building permits in towns that require them. The Colorado Experiment Station has published information on size of family and number of dwellings in each county which helped in working out possible uses of native lumber.

Table 28 shows new construction in eight of the principal towns within the study area, with such other data as could be obtained from permits for frame buildings. The figures cover a twelve month period during 1939 and 1940.

Table 29 indicates the possible amount of native lumber in the frame buildings in the eight towns represented in Table 28. Simple bills of material were used as a basis for volumes.

The volume was prorated on the basis of total town populations to obtain a volume for all towns in the study area. The total of 4,665 M board feet could easily be extended by over one million board feet to take care of the buildings other than frame, which were not included because of the variety of types and uses.

Table 28
NEW CONSTRUCTION FOR 12 MONTH PERIOD

(During 1939 and 1940)

1 Story Frame Dwellings

Town	Number Buildings	Average Number Rooms	Average Size Width	Average Size Length
Fort Collins	21	5.24	29.9	32.0
Sterling	18	-	20.1	29.9
Greeley	124	4.27	25.0	28.4
Longmont	40	4.55	28.2	30.3
Boulder	38	-	-	-
Wray	3	4.70	16.0	31.0
Fort Morgan	10	4.00	23.8	30.3
Loveland	9	5.10	25.7	27.0
Total & Average	263	4.30	25.5	29.3

1½ and 2 Story Frame Dwellings

Fort Collins	-	-	-	-
Sterling	-	-	-	-
Greeley	3	7.0	22.7	34.7
Longmont	-	-	-	-
Boulder	-	-	-	-
Wray	1	7.0	24.0	30.0
Fort Morgan	2	4.5	31.0	35.0
Total & Average	6	6.2	25.7	34.0

Table 28

(Continued)

Apartments and Duplexes 1 and 2 Stories - Frame

Town	Buildings	Average Number Rooms	Average Size Width	Average Size Length
Fort Collins	-	-	-	-
Sterling	1	-	28.0	40.0
Greeley	4	7.0	30.3	46.8
Longmont	-	-	-	-
Boulder	-	-	-	-
Wray	2	9.0	16.0	37.0
Fort Morgan	1	8.0	24.0	54.0
Loveland	1	6.0	44.0	33.0
Total & Average	9	7.5	27.7	43.1

Frame Garages

Town	Separate Buildings Number	Separate Buildings Size Width	Separate Buildings Size Length	Separate Buildings Size Height	Now Attached to Dwellings Number	Now Attached to Dwellings Size Width	Now Attached to Dwellings Size Length
Fort Collins	11	13.0	19.0	-	17	15.0	20
Sterling	10	15.8	23.4	-	2	-	-
Greeley	24	14.1	21.8	-	87	12.5	19
Longmont	20	17.7	19.4	10.5	-	-	-
Boulder	17	-	-	-	-	-	-
Fort Morgan	9	15.3	20.7	8.5	-	-	-
Loveland	8	17	33.0	-	3	-	-
Total and Average	99	15.5	22.0	10.0	109	12.9	19

	Chicken House - Frame Number	Chicken House - Frame Width	Chicken House - Frame Length	Chicken House - Frame Height	Coal House Number	Coal House Width	Coal House Length
Fort Collins	7	-	-	-	3	9	15
Greeley	2	10	16.0	-	-	-	-
Longmont	1	8	24.0	-	1	12	10
Boulder	1	-	-	-	-	-	-
Fort Morgan	1	12	20.0	-	-	-	-
Loveland	4	10	16.0	-	-	-	-
Total and Average	9	10	17.5	-	4	10	14

	Warehouses - Frame Number	Warehouses - Frame Width	Warehouses - Frame Length	Warehouses - Frame Height	Elevator Number	Elevator Width	Elevator Length
Greeley	2	30.0	60.0	-	-	-	-
Sterling- 2 Stories	1	16.0	46.0	-	1	21	50
Fort Collins	-	-	-	-	-	-	-
Fort Morgan	1	10.0	44.0	-	-	-	-
Total and Average	4	21.5	52.5	-	1	21	50

Table 28

(Continued)

Town	Storage: Separate Buildings: Number	Storage: Separate Buildings: Size: Width	Storage: Separate Buildings: Size: Length	Storage: Separate Buildings: Size: Height	Other: Attached to Dwellings: Number	Other: Attached to Dwellings: Size: Width	Other: Attached to Dwellings: Size: Length
Greeley	2	10.5	13.5	-	1	10.0	12.0
Fort Collins	2	14.0	24.0	-	1	12.0	20.0
Longmont	1	10.0	16.0	-	1	40.0	100.0
Fort Morgan	4	22.0	42.0	-	2	17.0	33.0
					1	16.0	20.0
					1	9.0	14.0
					1	10.0	10.0
					1	20.0	25.0
					1	-	-
					1	12.0	24.0
Total and Average	9	16.3	28.9	-	11	16.3	29.1

Town	Additions: Number	Additions: Cost	Additions: Size: Width	Additions: Size: Length	Remodeling-Frame: Number	Remodeling-Frame: Cost
Fort Collins	34	$19,535	12	18	62	$71,973
Sterling	8	1,217	12	17	-	-
Greeley	-	-	-	-	-	-
Longmont °	31	11,265	14	14	-	-
Boulder	-	-	-	-	40	-
Wray	-	-	-	-	-	-
Fort Morgan	-	-	-	-	41	-
Loveland	5	1,285	14	17	5	4,450
Total & Average	78	$33,302	12.7	16	148	$76,423

°Remodeling included

Town	Repairs: Number	Repairs: Cost	Repairs: Size: Width	Repairs: Size: Length	Reshingle: Number	Reshingle: Cost
Fort Collins	29	$ 3,960	-	-	86	$10,215
Sterling	16	6,025	-	-	-	-
Greeley	88	50,230	-	-	-	-
Longmont	53	4,955	-	-	-	-
Boulder	77	-	-	-	-	-
Wray	-	-	-	-	-	-
Fort Morgan	-	-	-	-	-	-
Loveland	-	-	-	-	1	300
Total	243	$65,170	-	-	87	$10,515

House built of local lumber.

Two new small, town dwellings. Houses of this type could be constructed in part with local lumber as shown in the house to the left.

Table 29

SUMMARY SHOWING POSSIBLE AMOUNT OF NATIVE LUMBER THAT COULD HAVE BEEN USED DURING 12-MONTH PERIOD IN FRAME BUILDINGS IN TOWNS IN STUDY AREA

Type °	Number of Buildings	Possible Volume in each Board Foot	Total Study Area Possible Volume in Board Feet
1 Story dwellings	263	6,600	1,735,800
1½ and 2 Story dwellings	6	11,200	67,200
Apartments & duplexes 1 & 2 stories	9	11,400	102,600
Garages	99	2,100	207,900
Garages attached to dwellings	109	1,800	196,200
Chicken houses	9	1,300	11,700
Warehouses	4	5,300	21,200
Storage	9	3,400	30,600
Mission and church	2	11,600	23,200
Elevator	1	12,000	12,000
Additions to houses	78	2,200	171,600
Total			2,580,000

°From towns in Table 28

The total of 2,580,000 board feet is based on town population of 69,111. Total town population of study area is 124,949. Total volume based on total town population is 4,665,000 excluding other than frame buildings, repairs, remodeling, and suburban construction.

Table 30 shows the dwelling units on the farms and in the cities, the latter including suburban dwellings which did not show in Table 29.

On the basis of 51,982 suburban and town dwellings, and 6,600 board feet possible native lumber per building, a total of the possible amount of native lumber in all of them would be 343,081,200 board feet. The 6,600 board feet represent a four-room house of the dimensions indicated for one-story frame dwellings in Table 28. The average house now being built is approximately of five rooms. #

This figure divided by 50 years, representing the replacement period of the average dwelling, would give 6,861,624 board feet as an approximate average yearly need in towns which could be native lumber. This figure is exclusive of maintenance and repair and is indicative only.

The Colorado Year Book shows that the Federal Housing Administration has accepted more loans for insurance in Colorado in 1939 than in 1938 or 1937.

#Data from 1940 Colorado Year Book.

Table 30

DWELLING UNITS IN STUDY AREA 1940 #
AND AVERAGE SIZE FAMILY UNIT

County	Total Number Dwelling Units #	Farm % Dwellings Including Tenant Houses	City & Suburban Dwellings Including Summer Homes	Average° Size Rural Farm Family	Average° Size Non-Farm Family
Adams	6,058			3.80	3.14
Arapaho	9,390			3.34	3.00
Boulder	13,655			3.82	3.07
Larimer	14,639			3.76	3.14
Logan	5,149			4.26	3.52
Morgan	4,721			4.12	3.34
Phillips	1,507			3.91	3.13
Sedgwick	1,528			4.17	3.36
Washington	2,435			3.93	3.13
Weld	18,168			4.14	3.40
Yuma	3,579			3.76	3.12
Totals	80,829	28,847	51,982	4.17	3.36

Data prepared by Colorado Agriculture Experiment Station.
° 1930 data.
% From Farm Study.

There were 392 loans for insurance in 1937, 727 in 1938 and 1,070 in 1939 which indicate an uptrend in town building. This is in accord with general observance of the town programs. Previous figures indicate that the present program is about normal with some towns, such as Greeley, being above and others like Fort Collins being below normal.

The Federal Housing Administration is now accepting native lumber in homes being constructed in Fort Collins. The Milligan Lumber Company, which deals principally in native products, sold lumber for ten Federal Housing Administration and five private homes in Fort Collins, last year.

Coal mine showing part wood construction

Small coal mine using one horse for lifting coal

TABLE 31
TIMBER USED IN COAL MINES WITHIN THE STUDY AREA

Cross Bars Lin. Ft.	Props Lin. Ft.	Motor° Ties Lin. Ft.	Room % Ties Lin. Ft.	Std. 8' RR Ties Number	Cap Pieces Number 4"x6" x 18"	Cap Pieces Number 4" x 8" x 22"	Cap Pieces Number 6" x 8" x 18"	Brattice# Lumber M. b. f.	Other Sawed Timber M. b. f.	Slabs 8' Long Number
2,800	2,734,096	552,460	449,710	1,920	105,719	14,000	1,000	99	80.5	28,559
Converted to Board Feet										
8,400	2,734,096	1,104,920	764,507	57,600	317,157	68,444	6,000	99,000	80,500	
						Total			5,240,624 Ft. B.M.	

° Motor ties all computed on basis of 5"x5"x5' or rounded to 2 bd. ft. per lin. ft. although some were 5"x7"x5' and 6"x6"x5½', 5"x6"x5'.

% Room ties all computed on basis of 4½"x4½"x4½' or rounded off to 1.7 bd. ft. per lin. ft. although some were 5"x4½"x5' and other similar variations in dimension.

Brattice is the coal miner's term for 1" lumber, usually 12" wide used principally for air vents.

TABLE 32
AMOUNT OF TIMBER USED IN METALLIFEROUS MINES WITHIN THE STUDY AREA

	Mill Sticks 6" Min. Top	Stulls 8" Min. Top	Logging 3" to 5" Min. Top Dia.	Lumber Planking & Structural Timber
Total Linear Feet	172,764	172,666	536,944	1,599,405
Total converted to feet b.m.	172,764	345,332	536,944	544,365

This survey covers a great variety of mines and mining operations. They vary from mines with a daily capacity of less than five tons, operated by one or two individuals, to those with a daily capacity of 2,000 tons which use the latest modern equipment and employ fifty or more men.

The amount of mine timber used varies with operating methods in mines of the same capacity. For example, mines which are worked from the far end progressively toward the main shaft, permit the recovery of a number of timbers and the ceiling is then permitted to cave. Those mines where the operation begins at the shaft and progresses away must keep the ceiling propped along all main tracks during the entire operation. This latter method of operation requires a smaller initial investment but is less efficient. (some mines recovering as low as 45% or less of the coal). The use of modern loading equipment practically eliminates the use of room ties and props since steel jacks with only a few props support the ceiling until each room is mined out.

Table 31 indicates an annual need of over five million board feet of timber in the coal mines, in addition to a substantial market for over 28,000 eight-foot slabs. Very little of the timber used in the mines comes directly from the timber operator but is obtained on a barter basis from various coal dealers, who make a considerable profit on the transaction at the expense of the timber operator.

Private timberland has been a source of a large amount of mine timber, but as this source is being rapidly depleted more timber is being cut from the various national forests for this use. Some timber comes from as far south as Fairplay on the Pike to as far north as Centennial, Wyoming on the Medicine Bow National Forest.

The Colorado State Geological Survey estimates there is an area of 4,300 square miles, with a tonnage of 13,590,000,000 tons of coal in the Denver region, a large portion of which lies within the study area. Higher estimates were given by M. R. Campbell, Senior Geologist of the United States Geological Survey. However, with the above conservative figure there will be a continuous demand for mine timber for a great number of years to come.

Metalliferous Mines:°

Practically all the "hard rock" mines are located on the south end of the Roosevelt National Forest in a westerly direction from Boulder. Gold, silver, tungsten, copper and lead are the principal metals mined, although some other metals, and non-metals are represented to some extent. (Table 33)

° See table 1 for acreage.

Modern coal mines showing all metal structures

The present National Emergency Program is creating a greater demand for tungsten than has existed since World War #1. For this reason the data given in Table 32 must be considered as very conservative for the present but is about right if taken to represent an average year. This shows a need of 1,600,405 board feet.

In the past, most of this timber was obtained from the claims themselves or from adjacent private land. Now, with most of this exploited, the operators have turned to the Forest Service to furnish it.

Both "hard rock" and coal mines combined will need on an average practically seven million board feet of mine timber annually.
(Sum of Table 31 and 32 shows 6,840,029 feet board measure.)

Table 33

MINE PRODUCTION OF GOLD, SILVER, COPPER LEAD AND ZINC IN COLORADO DURING 1939 °

County	Gold Value	Silver Value	Copper Value	Lead Value	Zinc Value	Total Value
	$	$	$	$	$	$
Adams	11,095	36		-	-	11,131
Arapaho	455	-	-	-	-	455
Boulder	1,012,690	27,182	16,848	3,901	-	1,060,621
Total for Study area	$1,024,240	27,218	$ 16,848	$ 3,901	$ -	$ 1,072,207
State Total	$12,839,820	$5,767,313	$2,748,720	$ 772,868	$ 190,320	$22,319,041

° The latest available data for tungsten was for 1938 which indicated a value of $249,000 for this metal produced in Boulder County.

RAILROADS - TELEGRAPH AND TELEPHONE LINES

Railroads:

Practically one fourth of the mileage of railroads in Colorado lies within the study area. (Table 34)

Information from the Denver Rio Grande and Western Railroad indicates a replacement program of 51 ties per mile during 1941. Using this figure in computing the needs of ties for replacement on all lines, 234,835 ties will be used for replacement within the study area. Mill studies on this Forest show that it requires an average of forty board feet, log scale, to produce one tie. On that basis, 9,393,400 board feet of ties are needed for replacement in 1941.

Telegraph and Telephone Lines

Over 29% of all telegraph and over fifteen percent of all telephone line mileage in the State are contained within the study area. (Table 34)

Telephone pole sizes vary from four foot two by fours nailed on top of fence posts, split poles, or crooked cottonwood limbs used for poles on farmer's lines to standard round poles used by the large telephone companies. Each company has its own set of specifications for sizes of poles dependent on the various use made of them. In general, however, poles vary from sixteen feet with a six inch top to 75 feet with a ten inch top.

The average pole used is 25 feet with a seven inch top, scaling forty board feet. For lack of better information this same figure with regard to board foot content is also used for telegraph poles.

The information given in Table 35 was furnished by Mr. R. W. Lindsay, of the Mountain States Telephone Company, and gives a figure of 1.29 poles per mile used for annual replacement and addition. A figure of one pole per mile for replacement and addition is being used for both telephone and telegraph poles. On this basis 94,096 poles, or 3,763,840 feet board measure are needed annually.

Table 34

MILEAGE OF RAILROADS AND TELEGRAPH AND TELEPHONE LINES IN THE STUDY AREA IN 1939°

County	Railroad	Telegraph	Telephone
Adams	93.03	1,290.94	8,159.94
Arapaho	50.23	753.33	13,592.87
Boulder	85.32	223.98	14,411.20
Larimer	138.86	217.52	15,525.12
Logan	133.60	790.54	4,945.56
Morgan	90.53	1,018.48	5,412.00
Phillips	36.31	36.30	811.88
Sedgwick	31.48	356.65	1,388.56
Washington	40.44	424.55	812.05
Weld	399.64	3,208.71	18,403.78
Yuma	40.36	404.85	1,907.27
Total for Study Area	1,139.80	8,725.85	85,370.23
Percent of State Total	24.75	29.55	15.25
State Total	4,604.61	29,530.91	559,872.79

° Colorado Year Book.

Table 35

POLE REPLACEMENTS AND REPAIRS - COLORADO

January 1, 1940 to December 31, 1940

MOUNTAIN STATES TELEPHONE COMPANY

District	Poles Replaced	Poles Reinforced	Poles Reset	Poles Removed and not Replaced	Poles Added	Poles in Plant	Miles Estimated
Colorado Springs	388	39	22	211	126	17,865	
Central	1,194	44	54	677	733	45,426	
Fort Collins	310	7	38	165	147	15,140	
Grand Junction	740	62	30	666	678	43,120	
Greeley	971	30	5	1,062	524	35,520	
Pueblo	1,947	70	137	1,400	771	54,045	
Denver	499	3	2	238	401	21,937	
Total	6,049	255	268	4,419	3,430	233,053	5,800
Toll	3,720	78	217	2,310	2,702	201,734	6,500
Grand Total	9,769	333	485	6,729	6,132	434,787	12,300

Poles Replaced	9,769	Replacement and Additions, Per Mile	1.29 Poles
Poles Added	6,132		
Total	15,901		
Miles of Line	12,300		

Power Lines

Practically all the power lines are strung on butt treated western red cedar poles which the Public Service Company of Colorado estimates have a life of from 25 to 30 years.

Although this company has built several lines using lodgepole pine in the past it is not now using this type of timber to any great extent.

Table 36 was prepared from data furnished by General Engineer J. L. McKinley, of the Public Service Company of Colorado, and applies to its lines only. Data on other lines was not available at the time and would no doubt show considerable additional mileage. Poles per mile vary considerably, but average approximately twenty per mile. This figure shows a need for 23,812 which, with a life of thirty years, indicates a replacement need of 794 poles annually amounting to 51,610 feet board measure.

Table 36

MILEAGE OF POWER LINES OF PUBLIC SERVICE COMPANY OF COLORADO JUNE, 1941 °

County	Miles
Adams	200.7
Arapaho	90.7
Boulder	297.7
Larimer	228.3
Logan	124.5
Morgan	85.9
Phillips	-
Sedgwick	25.2
Washington	-
Weld	137.6
Yuma	-
Total for Study Area	1,190.6

Approximate size pole used is between 30 and 35 feet, classes 4 and 5,(contains 50 to 80 board feet, or average of 65 board feet).
Average life is 25 to 30 years.
Average number of poles per mile is 20.

° Includes only wood pole power lines up to and including 13 Kv urban and rural, but not including high voltage transmission lines or company operated telephone lines.

LOCAL TIMBER PRODUCTION

History

The old Colorado National Forest of the previous days did not extend as far east as it does today. It took in the higher areas containing mainly lodgepole pine, Engelmann spruce, and fringed into the lower areas of ponderosa pine. In 1916 the boundaries were extended east into the lower foothill region. The area within the extension was almost 50% alienated. Little has been done toward acquiring any of the alienated lands and it is doubtful if much can be accomplished under the exchange regulations. This addition increased the work load tremendously due to the complicated pattern of the alienations, lack of good surveys, and trespass.

Much of the high country was considered inaccessible at that time, so timber sales were made in the lower elevations adjacent to good roads. The smaller sales were for sawlogs and the larger ones for railroad ties. A relatively large proportion of native stumpage for many years has been manufactured into ties. Lumber from sidecuts in the sawing of ties was poorly manufactured because it was an incidental product. This not only gave native lumber a poor reputation, but the wholesale dumping of this product on the market led to widescale price cutting. Along with this came the fly-by-night operator who paid poor wages, or none at all, and left the country owing for wages, groceries, equipment, and other supplies.

The timber in the lower elevations is now practically cut out leaving that in the higher regions, where winter logging in general is impossible on account of deep snow. Due to new roads and better equipment, the timber in the higher elevations is now considered accessible and a good risk.

In the past few years, a few of the better operators have been trying to develop a market for better lumber products. They have found the market possibilities good. Some of those who produce seasoned and surfaced lumber are unable to supply the demand because of the instability of their operation, dependent upon forest timber sales.

One operator started a native lumber yard at Loveland, Colorado about one year ago. His business started off far above his expectations. He asked to have a block of timber advertised, which was done, but an outside operator with a poor reputation overbid him. As no other timber was ready for advertisement he was forced to subcontract from another operator, but had to build five miles of road and construct a new camp. Because his finances were limited, he was forced to sell railroad ties in order to obtain cash to carry on. His lumber yard has suffered since and he is still in debt. The operator who overbid him on the sale made no attempt prior bidding, to examine the timber which he obtained although urged to do so.(His operation is mortgaged in such a way that he has been able to beat his bills, social security, and State compensation.

There was little demand for railroad ties in 1940 which accounts for the low cut on the Forest. This low demand was due to some of the railroad companies dealing with Pacific coast operators for cheaper ties. The present war and defense program have made a ready market for Pacific coast products so the railroads are again urging local operators to furnish ties. Most of them feel that this is a temporary demand so are anxious to maintain and build up a lumber market. One firm, which purchases and treats ties for several railroad companies, recently wrote one operator and vaguely hinted that the market for his ties might not be too good if he continued to produce any quantity of lumber.

Size of Operation

Operators on National Forest and private lands vary from those who employ a few men to operations, such as the Otto Lumber Company, which has forest sales for over 100,000 M board feet of timber.

Type of Equipment and Products Manufactured

The operations vary in equipment as they vary in size. Some of the present operators exist with pieced together portable mills operated by old car motors, along with a few skid horses and old trucks. On the other hand, the Otto Lumber Company has six portable mills, mostly American #2, powered with good stationary motors or Diesel caterpillar tractors. They have four trucks, two bulldozers, and contract other equipment for the woods as needed. At Laramie, they have a lumber yard equipped with a planer, edger, cut off saw, resaw, and a 105 horse power gas motor.

One of the better average sized operations has two American #2 mills, with McCormick Deering power units, two trucks (1940 models) and sufficient skid animals to handle the operation. At the lumber yard he has a planer, moulder and matcher, power rip saw, cut off saw, and a 35 caterpillar gas motor for power. This equipment is in fair condition. The addition of a resaw, jointer, and the substitution of electric power would help his operation considerably.

Most of the portable mills in the woods have a capacity of from three to eight M board feet per eight hour shift.

Native lumber yard located in Fort Collins, Colorado.

Among the products manufactured in the line of lumber are:

1. Dimension stock
2. Sheathing
3. Siding
4. Shiplap
5. Pine flooring
6. Moulding
7. Knotty pine finish
8. Log siding

In addition, there is one operator who manufactures shingles from lodgepole pine, and he has been unable to meet the demand for this product.

Life of Operation

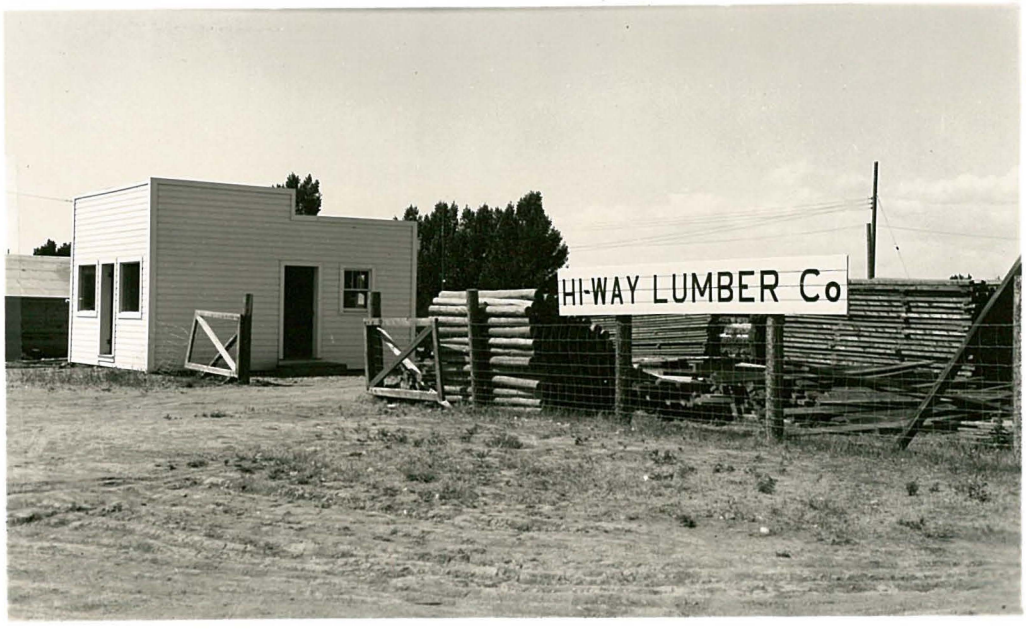
All Forest sales records since 1910 were examined and those operators purchasing fifty thousand board feet of timber or more were segregated in an effort to determine the length of their operations. This included fifty three operators who lasted in the timber business for an average of six years each. This average is actually about five years, if consideration is given to the actual time the sale started and closed. Those which lasted the longest are the large operations with good financial backing.

Ranger sales (less than $100 in value per sale) do not fall in the above class so they were examined separately. It was found that eight individuals existed for a long time on this type of sales. They show as follows:

1	individual	- 29 sales	from 1926 - 1936
1	individual	- 38 sales	from 1924 - 1940
1	individual	- 42 sales	from 1922 - 1940
1	individual	- 27 sales	from 1917 - 1935
1	individual	- 27 sales	from 1909 - 1923
1	family	- 62 sales	from 1920 - 1940
1	individual	- 25 sales	from 1929 - 1940
1	individual	- 16 sales	from 1926 - 1935

From a study of past operations on the Forest, it appears that the large and small operators are more easily stabilized than the medium sized ones. The small operator can get by on Ranger sales because he generally has other part time work. He is also the operator who does most to ruin the market, because his product is poorly manufactured and he sells it for whatever he can get.

The large operator can ask for advertisement of large blocks of timber and generally there are few to bid against him. If more large operators were to come on the Forest, each would have his investment endangered by having more competition in bidding. The medium sized operator has for many years had his investment endangered by this very thing. It is difficult to link this practice with the term "security", "stabilization", or "community benefits".



Native lumber yard located in Loveland, Colorado.

Investment

Tie operators have a rather low investment in equipment and material compared to those who handle seasoned and surfaced lumber. It is only logical that a good business man would hesitate to invest his money in a lumber business, or any other business, if he could not be guaranteed supply of raw material. This is the problem confronting the operators on this forest. This study indicates that there is a large enough market to induce a prudent business man to make the necessary investment in the operation provided he is assured a continuous supply of timber. To provide this assurance, however, is practically impossible under present regulations.

Those who go into the lumber business and conduct it properly find that it involves a considerable investment and operating cost. Some of the items of cost and investment are listed as follows:

1. Cost of equipment and installation
2. Cost of sales yard
3. Capital tied up in manufacturing costs during conversion up to actual collection
   - (a) Three to six months seasoning period
   - (b) Advance payment on stumpage
   - (c) Collection lags 30 to 60 days from invoice
   - (d) Interest, taxes, insurance, depreciation, etc., must be considered
   - (e) Salaries

A mill cutting 160 M monthly at a manufacturing cost (stumpage and equipment costs excluded) of $12 per M should count on tying up 160 x 7 (tie up period 7 months) x $12 = $13,440 on this item.°

Money could be borrowed by operators if the operation was sound from a financial standpoint, but this is definitely not the case.

The lack of a steady source of raw material is one of the main obstacles standing in the way of the development of the industry.

°From "Operating Small Sawmills, Methods, Bibliography and Sources of Equipment" by C. J. Telford, Forest Products Laboratory.

A small steam sawmill operated by one family.

A small shingle mill on the Roosevelt National Forest. Other mills are planned because of the demand for cheap shingles.

Table 37

CUT FROM ROOSEVELT NATIONAL FOREST - CALENDAR YEAR 1940
BY WORKING CIRCLES

Product	Boulder-Estes (Limitation 7,900 M Board Feet) Board Feet	Poudre (Limitation 12,500 Board Feet) Board Feet	Laramie River (Limitation 10,000 Board Feet) Board Feet
Lumber	1,373,270	638,826	955,671
Fuel wood	286,000	233,000	20,000
Props	370,430	81,389	2,842
Posts	9,576	10,885	-
Ties	-	30,000	2,284,000
Total	2,039,276	994,100	3,262,513
Grand Total * (All Working Circles)			6,295,889

*Approximately 1,000,000 board feet under Administrative Free Use was given to Larimer County last year for fuel wood for relief clients. This is not included in the above.

Table 38

CUT FROM WORKING CIRCLES -- ROOSEVELT NATIONAL FOREST

1931 - 1940

Year	Working Circles M Board Feet			
	Boulder-Estes	Poudre	Larimer River	Total
1931	2219	5910	2893	11022
1932	1553	2908	134	4595
1933	1783	190	615	2588
1934	1856	787	4027	6670
1935	1378	430	5936	7744
1936	2406	1707	2975	7088
1937	4854	2664	9801	17319
1938	2533	2607	12129	17269
1939	2385	1009	4676	8070
1940	2039	994	3263	6296
Total	23056	19256	46449	88661
Average Annual Cut:	2300.6	1920.6	4644.9	8866.1

Table 39

CUT FROM PRIVATE LAND WITHIN THE ROOSEVELT NATIONAL FOREST °

1940

Product	Board Feet
Lumber	294,000
Ties	1,084,000
Total	1,378,000

°From census figures - props and other products not shown.

Forest Cutting

Table 37 shows the cut on the Roosevelt National Forest for the three working circles for the calendar year 1940. The low figure is due to the fact that the major cut is now for railroad ties and there was little market for this product last year.

Table 38 shows the cut by working circles since 1931. It will be noted that the cut on the Boulder-Estes Working Circle is more stable than for the others. This is due to the fact that practically no ties are cut and the market for a variety of products has been developed, this market remaining fairly stable.

Private Cutting

Table 39 shows the cut on private lands within the Forest for 1940. The cut from private lands is decreasing due to wholesale cutting in the past and recutting before maturity. Most of the private land operators are now coming to the Forest Service for sales because of the scarcity of private timber.

Table 40

LOCATION OF NATIVE LUMBER DEALERS, 1940

Location	Surfaced Material	Seasoned Material	Operate on Private or Government Land
Boulder	Yes	No	°Government
Estes Park	Yes	In part	Private
Longmont	No	No	Private
Lyons	Yes	No	Government
Loveland	Yes	Yes	Government
Fort Collins	Yes	Yes	#Both
Laramie, Wyoming	Yes	Yes	Government

° Timber cut on Arapaho National Forest.
Some lumber comes from State Forest.

Other dealers haul unseasoned material to sale yards, farmers, or sell it on the area.

Employment

The main product in the past has been railroad ties and most operations are centered around the manufacture of this product. This market has not been very stable in the past due to outside competition which has also led to the stricter grading of ties.

Private and Government operations employ from 125 to 450 men for the cutting season, the number varying from year to year according to market conditions. Several hundred more make a part time living from fuelwood and post businesses. Operators cutting privately owned timber employ about twelve percent of the total number of employees. A stabilized industry would help the labor situation materially.

Wage rates vary considerably. The small operators pay less than the larger ones. Straight laborers average from $3.00 to $4.00 per day. The Otto Lumber Company which is by far the largest operation on the Forest has the best wage scale. It is also the only operation hiring union men. Their wage scale is as follows:

Sawyers	$7.00 per day
Off Bearers	5.50 per day (short logs)
" "	6.50 per day (long logs)
Skidders	5.25 per day
Swampers	4.80 per day
Cutters	2.00 per M
Ties	.10 per cut
Felling snags	.25 each

A few of the smaller operators offer fairly good wages in order to obtain labor and then only pay part of it. This is one reason for the continuous stream of transient labor coming and going.

The Otto Lumber Comapny employs mainly Swedes or Finns who are either single, or married and have small families. The smaller operators employ typical transients who are mostly married and have large families.

Although Forest Service regulations require strict sanitation with regard to garbage and debris disposal and protection of water supply as well as reduction of fire hazards yet living conditions are still quite primitive. Often two families live in one small cabin built of rough boards. Insects are quite common and social diseases are frequently found in camps.

COLORADO STATE CONSUMPTION OF LUMBER DERIVED WITHIN STATE, FROM OTHER REGIONS AND FROM IMPORTS °

	Amount Feet	Derived Within State %	Lake States	Central States	Prairie States	East Gulf	Lower Missis-sippi	North Pacific	South Pacific	North Rocky Mtn.	South Rocky Mtn.#	From Imports	Total
All Woods													
M.B.M.	54,123	363	179	14	206	3,212	91,166	5,980	11,149	64,107	458	176,834
Per cent	30.6	.2	.1	&	.1	1.8	51.6	3.4	6.3	36.2	.3	100
Soft Woods													
M.B.M.	54,067	-	-	-	-	1,616	91,166	5,980	11,149	64,051	458	174,420
Per cent	31.0	-	-	-	-	.9	52.3	3.4	6.4	36.7	.3	100
Hard Woods													
M.B.M.	56	363	179	14	206	1,596	-	-	-	56	-	2,414
Per cent	2.3	15.1	7.4	.6	8.5	66.1	-	-	-	2.3	-	100

Total Production in State: Soft Woods - 76,384 Hard Woods - 56 All Woods - 76,440

State Production Retained within State - 63.9%

°Data from "Lumber Distribution and Consumption for 1938"

%Is also included in South Rocky Mountain regional column therefore not included in totals.

Colorado, Arizona, New Mexico, Wyoming and Utah.

& Less than 0.1% as rounded.

' From British Columbia.

FOREST POLICIES AND PLANNING

The Forest Service shortly after it was transferred to the Department of Agriculture in 1905 had set up for it by Secretary of Agriculture Wilson, the overall objective of managing the national forests so as to do "the greatest good to the greatest number of people in the long run".

Policies subsequently established for all phases of Forest Service activity pointed to this overall objective. From time to time as local and national conditions have changed it has been necessary to modify old policies, to abandon some and to adopt new ones. From this study it appears that certain policies and procedures concerning the management and utilization of timber resources are in need of critical review to determine whether or not they are adequate.

One mandatory requirement in effect at the present time causing the most concern and which this study indicates is in need of modification is the inability of the Forest Service to sell stumpage, amounting to over $500 in value in commercial operations, without incurring the bid procedure irrespective of local conditions and other factors that might indicate this procedure unwise.

The bid procedure although adequate in most cases, does have weaknesses which affect the whole community. For example, there are a number of cases where it has very definitely contributed in a large measure to the instability of lumbering operations on the Forest. The very keen competition for stumpage between operators has resulted in bids being submitted and accepted for as much as 76% more than a prudent operator could afford to pay. It has resulted in desirable, established operators being displaced by undesirables of uncertain timber experience, low financial standing and questionable integrity. The unscrupulous operator definitely has a decided advantage in bidding, because he pays starvation wages, or none at all, and too frequently is "judgment-proof". Too many operators of this type conduct their businesses under the premise of "cut-out and get out before the creditors catch up". It is only too apparent, that the whole community loses where operations of this kind are in progress. There is no way under the current bid procedure to eliminate such operators, who actually are a discredit to the Forest Service and a liability to the community. Service to the community should receive prime consideration in the management of the timber resources. The required bidding procedure permits no consideration as to the type of operator who will be permitted to cut national forest stumpage, or of the detrimental effect of undesirable operators upon the community.

The Doxey Bill, H. R. 572, will if passed, offer a solution for the corrections of evils now apparent under the bid procedure. A provision in this bill would permit the Secretary of Agriculture, under certain conditions, to sell stumpage at not less than its appraised value without competitive bidding.

Another factor affecting stabilization of the local timber industry is the lack of essential basic data from which to build adequate plans for management of the timber resources. Forest figures on growth and volume are only approximations based on meager information of doubtful reliability. Until an accurate inventory of these resources is obtained, it is impossible to set aside an adequate supply of stumpage to sustain an operation for a definite period of time. This is necessary to stabilize the industry and the operator as well.

The major responsibility of the Service is to protect and properly administer the forest resources under its jurisdiction. Sound management of these resources is dependent upon sound plans, which are no better than the basic data used in their construction. The proper management of the Roosevelt National Forest timber resources cannot be definitely assured until a detailed inventory of those resources has been made which will permit the preparation of logical, dependable, and workable plans. Up to the present time, finances and manpower have not been sufficient to accomplish this task. It is hoped that ways and means can be found to acquire these data in full in the not too distant future.

As a start to meet this need for basic information an intensive timber reconnaissance is being started on a portion of the Forest this year. It is hoped, however, that adequate funds will be provided to cover the entire Forest within a few years. Then, with an accurate inventory of the timber resources together with the data in this study a comprehensive management plan may be prepared.

Management plans to be entirely effective should not stop on Forest boundaries but should include the boundary of the dependent community as well. Whenever the need of the dependent community is greater than can be supplied by one forest as the case indicated by this study it is essential that management plans be correlated with adjacent forests so that the needs of the community may be met.

It has been clearly brought out that there is a potential market for all types of timber products grown on the Forest and if fully developed would absorb more than twice the allowable annual cut of 30,000,000 feet. (Table 42) The annual cut for the period 1931 to 1940 averaged 8866.1 M feet board measure. Assuming that all the material cut from the Forest was used within the dependent territory, it would provide a little over fourteen percent of the lumber products needed.

Table 42

SUMMARY OF TOTAL FOREST PRODUCTS NEEDS
WITHIN THE STUDY AREA WHICH COULD BE NATIVE MATERIAL

Purpose for which needed	Minimum Annual Needs M Feet	Table	Maximum Needs for 1941 M Feet	Table
New farm buildings	10,830	16	78,283	18
Maintenance of farm buildings	9,586	27	21,963	20
Posts for new fences	4,232	27	12,697	19
Posts for maintenance of fences	11,175	27	21,417	19
Corral poles	262#	19	2,620°	
Total farm needs	36,085		136,980	
New town buildings	4,665	29		
Maintenance town buildings	%?			
Total town needs	4,665		6,862	29 & 30'
Material for coal mines	5,241	31		
Material for metalliferous mines	1,599	32		
Total mine needs	6,840		6,840	31 & 32
Railroad ties	9,393		9,393	
Power, telegraph & telephone poles	3,816		3,816	
Total	60,799		163,891	

Data from very incomplete returns, needs probably 10 times figure us
° Conservative estimate.
% Available information could not be accurately broken down.
' Fifty-year life per building .

Actually much of the material cut on the Forest is used outside the zone of dependency, but this is more than offset by imported products. There is admittedly a large differential between the average annual cut and the allowable cut, indicating that the Forest is supplying only about one fourth as much as it could and should. However, there is every reason to believe that this can and will be changed in time by publicity and education of the manufacturer and consumer. With the material and the demand present and apparent the Forest should be disposing of its annual increment within a relatively short time.

It now appears that the allowable cut is too high. The present figure of 30,000,000 feet board measure was based on very extensive data, involving at least some estimates of questionable value. After the detailed survey beginning this year is completed, the Forest should be in position to determine the annual increment with a far greater degree of accuracy. It may find itself reaching the objective of cutting an amount equal to the annual growth earlier than now expected.

Another question arises as to the type of sales that should be made. At present 29% of the annual cut is manufactured in the form of ties. (Table 43) Utilization on all tie operations is anything but desirable, because there is so much waste. No trees of less than eleven inches d.b.h. can be used, and cutters cannot go into the tops beyond ten inches in diameter. In addition, the waste from slabbing is likewise heavy. Larger trees showing even small amounts of butt rot must be long-butted to eliminate it, and trees of minimum d.b.h. showing any kind of butt rot cannot be used. As compared to typical lumbering operations utilization on tie sales is probably not much more than half, if that much.

If the waste in tie operations is only fifty percent, then the indicated annual cut for ties should be doubled, in order to give a true picture of the total annual cut because waste has heretofore not been shown. Thus the average annual cut as shown in Table 38 amounting to 8866.1 M feet board measure should be increased to 11430.9 M feet board measure which more nearly gives the true picture. In addition to the waste in manufacturing operations, the residual stand in lodgepole pine of 160 years and over is mature and puts on little if any additional growth. Too frequently the residual stand, and slash are so heavy as to prevent natural reproduction and continue to occupy the land thus actually making it non-productive.

From the standpoint of actual need of the dependent community for all products of the Forest, and from the standpoints of good utilization and silviculture there appears to be a grave question as to whether further tie sales can be justified. The study indicates not.

Lack of essential information in many cases led to the making of sales which from one standpoint or another later proved to be unwise. In some cases the operators were permitted to obtain sales where they were advantageous to themselves only and for the products for which they had an immediate market without regard to sound utilization principles.

When the necessary information concerning the timber resources has been obtained, this, with a more comprehensive knowledge of marketing possibilities for local products will definitely remove barriers to better and sounder management in the future.

Education

It is presumptuous to assume that all the timber needs within the dependent territory could be replaced with native material, yet it is evident that well manufactured native material could be substituted for a large amount of the timber products now shipped into the State.

To inaugurate this substitution will involve a carefully planned educational program of both the producer and the consumer.

The producer, or timber operator, in this case will have to be taught to produce a well manufactured product that will conform to the wants and needs of the consumer. He must learn to set up definite standards and rigidly adhere to them, with the understanding that an inferior product put on the market, even at a reduced price, will reflect adversely in the future market of native materials.

Next, the consumer must be educated to the various uses that native material will adequately fill as well as learn its limitation. For example, he must be taught that he cannot expect a lodgepole pine post to last twenty or more years unless it is properly creosoted. He should also be informed where he can obtain this material. There are still some people who are prejudiced against native lumber, since from their past experience it means, ungraded, unseasoned and poorly manufactured lumber. In order to overcome this aversion it may be necessary to adopt a name such as "Rocky Mountain" or "Midwest" lumber for well manufactured, seasoned native lumber.

Based on service to the community the Forest Service will have to take the initiative in any such educational program, and although there are various means of conducting it the following ways are suggested as a start.

Assist producers in displaying samples of well manufactured lumber and other products at the State fair, stock show, county fairs, and at county agents' offices within the dependent area. Give illustrated lectures at various farm gatherings. Get local lumber yards to handle native material, and supply farmers with building plans for various farm buildings with bills of material listing appropriate native species.

Table 45

TOTAL FOREST PRODUCTS CUT FROM ROOSEVELT NATIONAL FOREST

Period 1931 - 1940 Inclusive. M Board Feet

Year	Saw Timber°	Ties	Fuel	Poles	Posts	Props	Total
1931	7,245	2,450	142	20	147	1,018	11,022
1932	3,283	33	193	-	112	969	4,595
1933	988	500	228	-	38	834	2,588
1934	1,828	3,267	513	-	97	965	6,670
1935	2,786	3,367	531	-	77	483	7,744
1936	4,277	1,467	437	-	169	738	7,088
1937	11,302	4,161	402	19	150	1,285	17,319
1938	9,452	5,933	1,385	-	31	468	17,269
1939	5,714	1,656	153	-	27	520	8,070
1940	2,968	2,314	539	-	21	454	6,296
Total	49,843	25,648	4,528	39	869	7,734	88,361
Average Annual Cut	4,984.3	2,564.8	452.8	3.9	86.9	773.4	8,866.1

°Large part made into ties from saw log sales.

SUMMARY

Briefly, the study conducted in the eleven northeastern counties of Colorado indicates:

1. That there is a definite market and need for native products in the study area. The minimum market possibility of 60,799 M board feet annually in the study area is far beyond the sustained yield figure for the Roosevelt National Forest.

2. That the building trend is due for a rise. Town building is on the increase now and indications are that farm building will increase in the near future, providing crops and prices are fair.

3. That utilization and economic benefits would accrue if operators could be given some assurance of stumpage which would safeguard the investment necessary to produce good lumber products. If the Doxey Bill is not passed, then the right to withhold a certain percentage of the annual increment to protect the operator with the high investment from a shortage of material would help solve the problem.

4. That a carefully planned educational program for both operator and consumer would help to increase the market for native products, such as lumber, posts, and poles, and would help to overcome the complex against the use of materials which were heretofore poorly manufactured and misrepresented when sold. Changing the name "Native" to "Midwest" or "Rocky Mountain" has helped in numerous instances to overcome some objection to the use of native products.

5. That if the forests are to follow business trends that the term "annual limitation of cut" should be changed to "periodic limitation of cut" inasmuch as the average sustained yield will allow.

6. That planning and management be set up on the basis of logical dependent markets. This may make it necessary to set up a management unit of several forests in order to properly supply the needs of one market area.

7. That planning for management of forests cannot be satisfactorily accomplished without determining the needs and problems of the dependent communities.

8. That the Forest Service should be in a position to decide the products for which sales will be made because of its knowledge of the needs of the community and the market.

9. That a market for varied products makes for a more stable business and employment trend than one built up around one product, such as ties. It would also improve utilization of forest products and assist in reaching the goal of disposing of the allowable cut annually.

10. That all the foregoing contributes directly toward placing the forest in the best silvical condition within a practicable period of time which will at the same time constructively support the social dependencies (human needs) within its zone of influence.

A P P E N D I X

SURVEY OF MARKETING TIMBER PRODUCTS

USE OF WOOD ON FARMS

NAME _____ OWNER ___ TENANT ___ SECTION ___ TOWNSHIP ___ RANGE ___ COUNTY _____

A TYPE OF BUILDING	NO. ON FARM	MATERIAL OF BUILDINGS							AGE OF BUILDINGS (YEARS)						°OUTSIDE DIMENSIONS			NO. OF ROOMS	NO. OF STORIES	ARE REPAIRS NEEDED WHICH REQUIRE LUMBER?	DOES BUILDING REQUIRE REPLACING	NEW BUILDING WANTED	VALUE OF LUMBER USED IN MAINTENANCE LAST 12 MONTHS	
		FRAME	LOG	STUCCO	STONE	CONCRETE	BRICK	EARTH	1 YEAR OR LESS	1 - 10	11 - 24	25 - 49	50 & OVER		LENGTH	WIDTH	HEIGHT TO EAVES						NATIVE	OTHER
FARM HOUSE																								
TENANT HOUSE																								
GARAGE																								
GENERAL BARN																								
DAIRY BARN																								
COW SHED																								
SHEEP SHED																								
HOG HOUSE																								
GRANARY																								
CORN CRIB																								
MACHINE SHED																								
POULTRY HOUSE																								
MILK HOUSE																								
WINDBREAKS (LUMBER)																								
VEGETABLE CELLAR (OUTSIDE)																								
ICE HOUSE																								
TOILET (OUTSIDE)																								
WINDMILL TOWER																								
Other																								

°If not simple rectangle give additional dimensions of all projecting rooms, porches, etc.

(Over)

B. If market prices remain at present level, do you plan on doing any building within the next three years?_____ If so, give kind of building_____
Estimated size_____ Material_____

C. If market prices become 25% better, do you plan on doing any building within the next 3 years?_____ If so, give kind of building_____
Estimated size_____ Material_____

D. Native lumber is local lumber which in most cases is unseasoned and rough. Would you use more native lumber if it were seasoned, surfaced, graded and properly manufactured? (Answer Yes or No)_____

E. If a tenant, give length of time of your lease_____
(a) Does owner live in Colorado?_____
(b) Is owner an individual, corporation, Federal Land Bank, Etc.
(State which)_____

F. Do you belong to a cooperative through which you can buy lumber? (Answer Yes or No)_____ Would you be interested in such a cooperative? (Answer Yes or No)_____

G. Do you have a farm woodlot? (Answer Yes or No)___ Acres___ Does it furnish all your fuel wood?_____ (Percentage_____)

H. Do you purchase coal trucked direct from the mines? (Answer Yes or No)_____
Do you truck produce to any foothill towns?___ (If so, list by loads)_____
Have you purchased native lumber trucked in? (Answer Yes or No) _____
Native posts trucked in (Answer Yes or No)_____

I. Are there any male members in your household over 18 years of age not employed during the entire year who would be interested in woods work?
Number interested___ Months unemployed_____ Season_____

J. If possible to arrange satisfactory financing plan, would you be interested in construction or repairs?_____
If a renter, what do you think the attitude of your landlord would be toward financing improvements? (For or Against)_____

K. How many rods of fence do you have on your farm?_____ % metal posts_____
How many fence posts do you need for repairs next year?_____
For new fence, next year, give number_____

L. How much lumber do you need for general repairs?_____

M. Approximate number of sacks of cement needed for various purposes_____

N. Are there any shade trees_____ or windbreaks_____ on your farm? (Check)
Number of shade trees needed_____.
Number of rods of tree windbreak needed_____

Instructions for Completing Form on "USE OF WOOD ON FARMS"

Please complete top of form since this information is essential in preparing a map showing the farms covered.

A. The first column should show the number of each type of structure on the farm, with the name of any wooden structures not listed shown on the bottom under "OTHER".

Please check the kind of material each building is made of. If two kinds of material in the same building check each but give dimensions of wooden part only.

"OUTSIDE DIMENSIONS" of buildings may be paced and "HEIGHT TO EAVES" estimated.

Under "NO. OF ROOMS" omit closets and pantries but include bath and enclosed porches if over 6' x 8'.

Consider as "NATIVE" any lumber produced within the State.

B. & C. Market prices of farm produce is meant.

D. This defines the average conception of native lumber.

E. The question of ownership is important with reference to landlords in obtaining cooperation on new construction and repairs.

F. This does not necessarily indicate future competition with local lumber yards since the market for native lumber is also open to them.

G. Self-explanatory. Intended to bring out future fuel wood market.

H. Self-explanatory. Is an aid in working out economic transportation by either trucks or rail.

I. Self-explanatory. Brings out part time labor possibilities.

J. & K. Self-explanatory.

L. Indicate any use of lumber or wood not called for in other questions, such as minor repairs or improvements in buildings and wooden parts for farm machinery.

M. & N. Self-explanatory. M brings out need for trees on the farm.

USE OF WOOD IN MINES

NAME OF MINE _____ LOCATION _____

COMPANY _____

ANNUAL NEEDS:

PROPS: PIECES SIZES

_____
_____
_____
_____
_____
_____
_____
_____
_____

MOTOR TIES:

_____

ROOM TIES

_____

CAP PIECES

_____

BRATTICE

_____

OTHER

_____
_____

SOURCE OF MATERIALS:

_____
_____
_____
_____
_____